

COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS

MARCH 1943

DOUBLE DEPENDABILITY

The man behind the wheel . . . and the truck he pilots . . . BOTH shoulder an increased responsibility in getting their vital wartime loads to destination . . . in keeping on the job . . . in keeping physically fit . . . in coming through when the going is tough. To this end the extra durability built into Reo trucks is now paying premium dividends.

REO MOTORS, INC.

LANSING, MICH.



America's Toughest Truck ★ America's Dependable Armament



*No bugle calls—
no bo'sun's whistles—
but—SEALED POWER MEN and WOMEN
HAVE MANNED THEIR BATTLE-STATIONS*

When our pilots head their planes into a dogfight—when our tank-drivers crash into the foe's parapets—when those incredible P-T boats of our Navy roar into devastating action, our boys trust their lives to *fire-power, man-power* and—horsepower!

Everywhere, it's a war of engines. And the very *hearts* of those engines are the shuttling pistons and rings, toiling in their infernos of flaming heat. It's an *honor*, that we Sealed Power people are trusted to produce them by multiplied millions! Sealed Power Pistons, Rings and Cylinder Sleeves serve every arm of the nation's forces—in aviation, marine, tank, truck, tractor and jeep engines, in

portable power plants, motorcycles, auxiliary engines, railway diesels and a score of other services.

Sealed Power men and women want all America to know just how we feel about this responsibility:

"By no act or neglect of ours will a sub-standard Sealed Power piston, ring or sleeve be knowingly sent into the service of our country."

Certainly, that's what we've *always* tried to live up to . . . it's not new. War has not changed our standards. *It has only made them more important.* Millions of American car and truck and tractor owners know that Sealed Power Pistons and Piston Rings mean sure satisfaction.



AN INDIVIDUALLY ENGINEERED SET FOR
EACH POPULAR MAKE OF CAR OR TRUCK

Every gun,
tank and ship
is half scrap.
Send your
scrap to war.

SEALED POWER CORPORATION

Muskegon, Michigan • Windsor, Ontario

Piston Pins, Valves, Water Pumps, Bolts, Bushings, Tie Rods, Front End Parts

PISTON RINGS — PISTONS — CYLINDER SLEEVES

AMB

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Transp. Lib.

COMMERCIAL CAR JOURNAL

with which is combined Operation & Maintenance

Reg. U. S. Pat. Off.

Acceptance under the Act of June 5, 1934, authorized December 18, 1934.

Published monthly

Member C.C.A.

Vol. LXV

Philadelphia, March, 1943

No. 1

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SUBSCRIPTION RATES: United States and United States Possessions and all Latin-American countries—\$2.00 per year. Canada and Foreign—\$4.00 per year. Single copies—25 cents. April issue. \$1.00.

Owned and Published by
CHILTON COMPANY
(Incorporated)

Executive Offices

Chestnut and 56th Streets, Philadelphia, Pa., U. S. A.

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For RATIONED MILES



The rational way to operate a gas engine was determined by automotive engineers years ago: Under controlled temperature, for true economy of gasoline and lubricating oil, and maximum motor efficiency.

The thermostat which the designers put in the car's cooling system must do its job of controlling temperature *precisely* this winter if users are to get even the miles the Government allows!

So check this vital part as an important step in every tune-up. As stocks and wartime restrictions permit, see that replacements are made with Dole Thermostats.

THE DOLE VALVE COMPANY

Devoting Production Facilities Almost Entirely to Motorized Fleets and Aircraft of the Armed Forces
1901-41 Carroll Ave. • Chicago, Illinois
Representatives in Principal Cities

DOLE

Replacement THERMOSTATS

We Want You to Have Our NEW HYDRAULIC EQUIPMENT

BULLETIN!



IT'S YOURS!

War has brought changes. And the Blackhawk Hydraulic Equipment Line has changed, too. It's been simplified and concentrated on those models having the most utility in vital war work.

In fact, wartime demands for Blackhawk products, plus the need for eliminating delays and misunderstandings, have made it necessary to publish a *brand-new catalog*—simplified to save your time.

Of course, our ability to keep on making our regular products doesn't mean that we have a "special drag" anywhere. It just means that the war effort *needs* what we make!

Then, too, we've got to ship according to priority regulations, or we would have no right to produce a single Blackhawk Jack, Porto-Power or Wrench.

But many branches of automotive, truck, bus, tractor and implement service are so vital that they do have the necessary priority to keep on buying Blackhawk's time and material-saving equipment.

Your rating can help your Blackhawk Jobber arrange reasonable delivery for you, too — if he shouldn't happen to have stocks. See him today if you have need for Blackhawk Jacks or Porto-Power products.

A Product of BLACKHAWK MFG. CO.
Department M1133 Milwaukee, Wisconsin

Here's our new catalog describing the present Blackhawk Hand and Service Jack Line — Porto-Power Equipment — plus some Hydraulic Products you perhaps didn't know we produced.

Write and we will mail this new catalog. Or — ask your Blackhawk Jobber — he has "extras."



Alloy Steel for Parts

The amount of high-alloy steel available for truck replacement parts in the second quarter of this year has been tripled. This good news represents the initial effort of the ODT Division of Motor Transport's claimant agency. The story the claimant agency presented to WPB of the industry's need was convincing and approval of the material claimed was granted. The material includes such high alloy steels as chrome-vanadium and molybdenum, for which the industry has been crying in order to supply critical replacement parts. The material is scheduled to come out of the furnaces in April and to be processed into parts during the second quarter. Orders for the parts are already in hand. Motor Transport's claimant agency is pressing a request for a few thousand tons of silico-manganese steel, much needed for truck springs.

23,000 New Vehicles Sought

ODT Director Eastman has said on several occasions that he hopes to get approval from WPB for trucks and trailers needed for essential services. A report was current that ODT was trying to get authorization for 23,000 vehicles, 14,000 of which would be trailers. These vehicles, according to the report, were destined for common carrier operations.

Used-Truck Price Ceiling

Informed quarters declared, and developments indicated, that OPA's bulge-brows (the boys in the legal department) had passed favorably upon the used-truck price ceiling plan that reached them several months ago after a lengthy period of preparation by the price administration's automotive consultants. The schedule of ceiling prices is understood to be similar to that given on page 130 of the January issue. Issuance by OPA of a used-truck price ceiling order now awaits completion of a list of 10,000 truck models compiled by OPA to aid the trade somewhat in the determination of base



WASHINGTON RUNAROUND

Alloy Steel for Parts . . . 23,000 New Vehicles Sought . . . Used-Truck Price Ceiling . . . Used-Truck Rationing . . . Simplified CWN Report . . . Idle Equipment Studied . . . Semi-Freeze of Drivers? . . . Tire Capacity Controversy . . . Gas Rations Excessive? . . . Etc. . .

by **GEORGE T. HOOK, Editor**

prices. March 15 and April 1 have been mentioned as effective dates, but those who know the way of government bureaus won't bet on either.

Used-Truck Rationing

The new used-truck development is the reversal of ODT in the matter of freezing used-truck sales. The Allocation Section of ODT completed plans for rationing used trucks many months ago but these were laid aside with the indication that rationing would not be undertaken. Used-truck rationing is again under consideration because ODT wants certain types of used vehicles to get into essential operations where shortages of equipment are claimed. It is likely that ODT will limit its rationing to used trucks of 1½ tons and over. The tonnage classifications that would thus be exempted represent about 40 per cent of annual truck production.

Simplified CWN Report

The simplification of reports required by the Certificate of War Necessity Order (T-rn-y's T-rk-y) is being seriously studied by ODT in its anxiety to relieve operators of paperwork that represents a serious problem because of manpower shortages. One idea under consideration is to cut out the daily reports in operations that might be described as "regular-route, regular-load," and require only a weekly report. In these operations the trucks run over the same routes day after day with practically the same loads. The idea is so logical that it should encounter little if any opposition.

Idle Equipment Studied

A sampling of the idle equipment reports made to ODT since reporting began shows that there is considerable (TURN TO PAGE 114, PLEASE)



The driver-saleswomen employed by the Supplee dairy are doing a very satisfactory job. Above: One of the young ladies is unloading empty milk cases. Right: The driving instructor is giving this group final instructions before they go on their routes



SOLVING MANPOWER

WOMEN DRIVERS

Large eastern dairy finds women make good, safe and dependable drivers but require help on the loading platform

by ROBERT I. GAYLEY

Safety Director, Supplee-Wills-Jones Milk Co., Philadelphia, Pa.

WHEN we received notice from our sales and personnel departments that they were hiring women to replace the men we lost on some of the milk routes and that it would be up to us to make them skillful truck drivers, we didn't bat an eyelash. We already had six months' experience training women ambulance drivers for the Red Cross.

The first batch of prospective milk maids we received for training presented a dramatic contrast, in the extreme sense, of the traditional conception of a Supplee driver-salesman. Louis Norfolk, our driver instructor, thought it was a gag or publicity stunt.

Instead of the husky, colorless male, there stood six trim young

ladies, eager, enthusiastic, pleasant and personable, although a wee bit nervous. They made a striking picture in their specially designed grey flannel uniforms with jaunty red caps and gloves to match. An incidental point, although one which the girls made much of, was the Aralac lining in the uniforms; Aralac is a wool fibre produced from milk.

While the girls presented an attractive picture, they were there on serious business. As Lou Norfolk and countless others were to learn, this attractive group was not being groomed for a publicity stunt. It was, rather, the successful result of careful planning by all departments concerned.

Employment Requirements

The personnel department did an excellent job of selecting girls who came in answer to our newspaper advertisements stating simply that we would train women for this healthful, interesting and lucrative work. Naturally, none of the applicants could be considered on the basis of similar ex-
(TURN TO PAGE 138, PLEASE)



There have been no complaints about the work being done by the women mechanics in this shop. The young lady on the left is grinding valve seats as part of an engine rebuilding job. Above: This young lady has become quite an expert in tune-up work

SHORTAGES WITH...



THE PROBLEM of building up a staff of women mechanics is twofold:

1. Selection and training.
2. Holding those trained.

Take it from a shop that has been doing this job for about 11 months, the second part of the problem is more difficult than the first. It had the courage and initiative to solve the manpower problem, only to experience an attack of labor piracy that almost nullified the effort, time and money invested in hiring and training a promising staff of female mechanics.

The experience with current manpower problems goes back about a year when this organization, located in one of the largest industrial cities in the country where major war industries have been experiencing difficulties in securing sufficient labor, began to feel the wartime drain. The shop is that of a successful automobile dealer, known far and wide for his ability, resourcefulness and accomplishments.

The experience covers many of the questions pertaining to the kind of

WOMEN MECHANICS

After a year's experience, one employer knows they can be trained, but says holding on to them is biggest problem

by A. W. GREENE

Assistant Editor, Commercial Car Journal

work women are suited for, the results accomplished, changes required in working conditions, male cooperation, working hours and wages, tools and other equipment, and other pertinent data that should provide a valuable guide for fleet operators considering employing women to solve manpower shortages. The name and address of the shop are omitted

by request for reasons outlined in the article. This omission in no way diminishes the value of the material, inasmuch as the basic manpower requirements of the automobile dealer and fleet operator are much alike.

A simple, three-line Female Help Wanted advertisement started the ball rolling. The ad, followed by (TURN TO PAGE 60, PLEASE)



These photographs, taken by TVA staff photographer, show the neat, well illuminated working arrangement of the TVA field garage at Bristol, Tenn.-Va.



The basic operations of the Tennessee Valley Authority were outlined by the authors in the February issue of *Commercial Car Journal*. This article points out how TVA's Transportation Division controls the maintenance of its 2300 vehicles over the widely scattered, strategically located system of garages.

An efficient system of uniform service procedure and supervision employed also serves as a clearing house for repair and salvage ideas, a few of which were picked at random and reproduced on the opposite page. These ideas, plus general service instructions, are distributed to all shop personnel in the form of service bulletins, one of which is reproduced in its entirety in the following pages.

Fleet operators will find in this article much valuable and practical data, packed into but a few minutes' interesting reading.

FLEET operators having a permanent staff of drivers have one advantage which we at the Transportation Division at TVA would like to have — uniform handling of vehicles. In our case,

we cater to the needs of around 5000 potential drivers; actually operating a giant drive-it-yourself system. Some drivers may be assigned to a vehicle for the duration of a given project, which may be a short or

long time. Others are definitely transient; some vehicles may have two or three such drivers in a day.

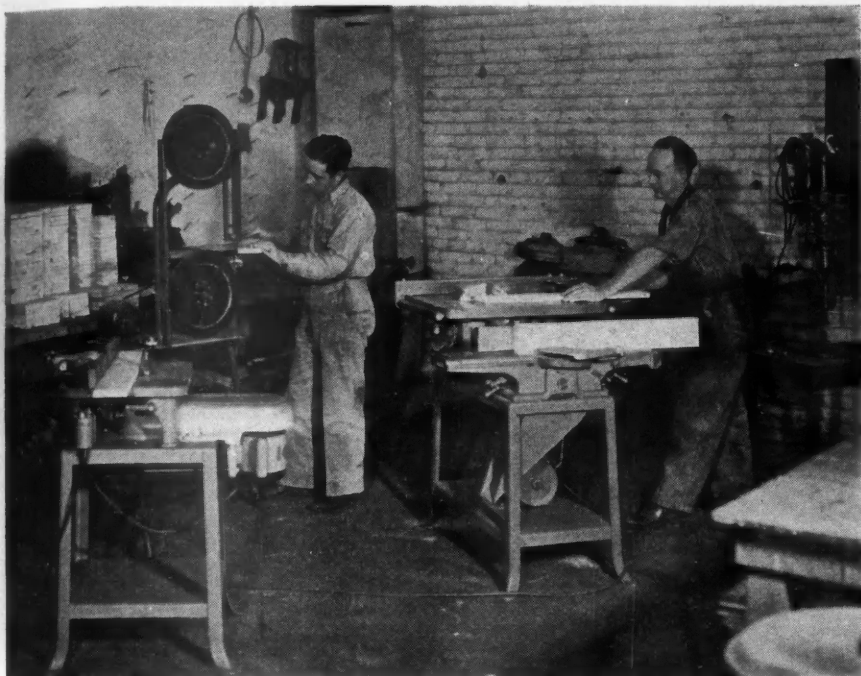
No matter how careful drivers may try to be, and most of our men and women are classed as such, they

SHOPMEN SPUR TVA SALVAGE

Pre-war plan of coordinating service facilities resulted in practices that now produce valuable suggestions for parts salvage and mechanic training

By
GEORGE H. IRISH **CHARLES HUDSON**

Chief, Transportation Division and Automotive Engineer,
respectively, Tennessee Valley Authority, Knoxville, Tenn.



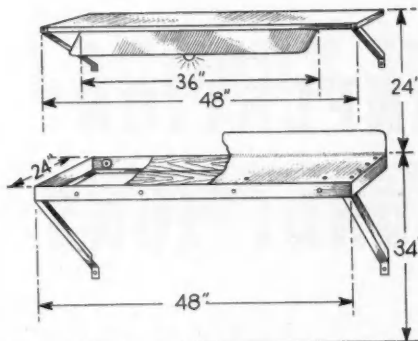
Woodworking shop in base garage at Knoxville

nevertheless do not handle their respective vehicles in the same way. This, naturally, is much harder on a vehicle than when but one driver is assigned to it permanently. Then, too, our road conditions run from good highways to the worst, with the worst in predominance.

For these reasons, if none other, our 2300 vehicles require the best of attention, and we must always be on call to provide efficient service. This requires rather extensive maintenance facilities, especially because the TVA operations cover so much territory, as outlined in the TVA article which appeared in the February issue of *COMMERCIAL CAR JOURNAL*. These facilities are so planned and strategically located as to make it unnecessary for any vehicle to be tied up for any long periods or to travel any appreciable distance for necessary service.

However, having proper and adequate facilities does not end all our problems; as a matter of fact that is just the beginning. These facilities must be so coordinated and unified that all work should be handled in the same way at all points. We cannot afford to have superior quality maintenance at one point, fair quality at another and poor or indifferent at the remaining points even though
(TURN TO PAGE 72, PLEASE)

As outlined in the accompanying article, TVA's Transportation Division employs service bulletins to inform and instruct the maintenance personnel in the most efficient repair and salvage practices. An evidence of the cooperation and interest shown in these bulletins is the fact that a great number of the ideas emanate from the personnel itself. The following practical and useful ideas have been excerpted from a few bulletins.



STURDY, EFFICIENT WORKBENCH

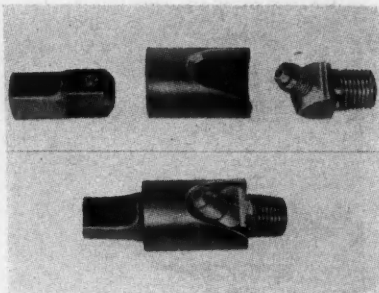
Make frame of $2\frac{1}{4} \times 2\frac{1}{4} \times \frac{1}{4}$ -in. angle iron. Weld all joints. Bolt frame top through the wall; use lag screw into wall at the bottom. Use standard 2-in. wood top and cover with scrap galvanized sheet iron, bending up at back for a splash board.

Shelf is made on $1 \times 1 \times \frac{1}{8}$ -in. brackets, and a 2×12 -in. board fastened in place by wood screws.

Lamp shade with center mounted light illuminates work space and avoids eye strain from glare.

Advantages: 1. Proper size—large enough for work, too small to accumulate junk; 2. clear floor underneath prevents junk and dirt accumulation; 3. ease of work due to absence of legs and shelves at shin height; 4. sturdiness; 5. absence of creeping.

SUBMITTED BY W. G. DeMOSS,
PARIS GARAGE



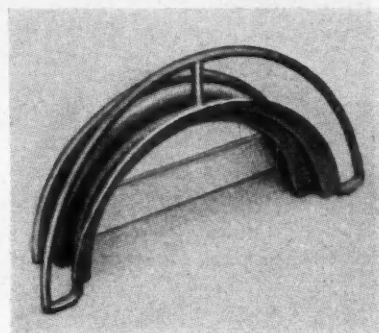
FORD FILTER FITTING WRENCH

The fitting illustrated above will be found useful with a standard socket wrench set for installing and removing the special 45 degree oil ($\frac{1}{4}PT \times \frac{3}{8}$ -in., 24 Thd.) used in oil gallery opening as feed to oil filters on all V-8 Ford engines up to 1941 models.

Select standard wrench socket of suitable size. Grind out one side, as shown in center of upper part of above illustration, to fit the square sides of the special oil.

Advantages: Time saving. Assurance that fitting is screwed down to a leakproof fit.

SUBMITTED BY HENRY DAVENPORT,
KNOXVILLE GARAGE

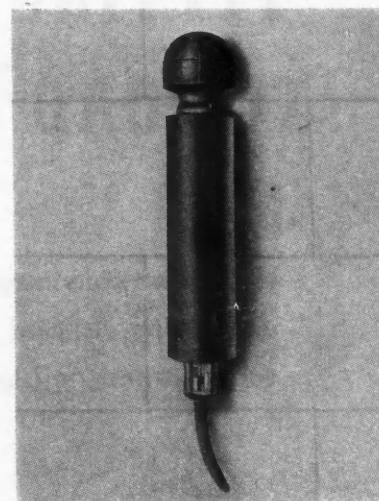


WALL HOSE RACK

Use of hose rack illustrated above will increase hose life and improve shop appearance. Hose kinks are eliminated and deterioration from grease lessened.

Make rack from salvaged drop center rims. Use scrap rod or reinforcing steel for back mounting plate and guard rail.

SUBMITTED BY R. E. HICKS,
CHATTANOOGA GARAGE



HYDROMETER RACK

A piece of discarded radiator hose and two old hose clamps, mounted at a convenient spot on a wall near where radiators are checked, will make a useful hydrometer rack.

SUBMITTED BY J. S. NOWLIN,
MORRISTOWN GARAGE

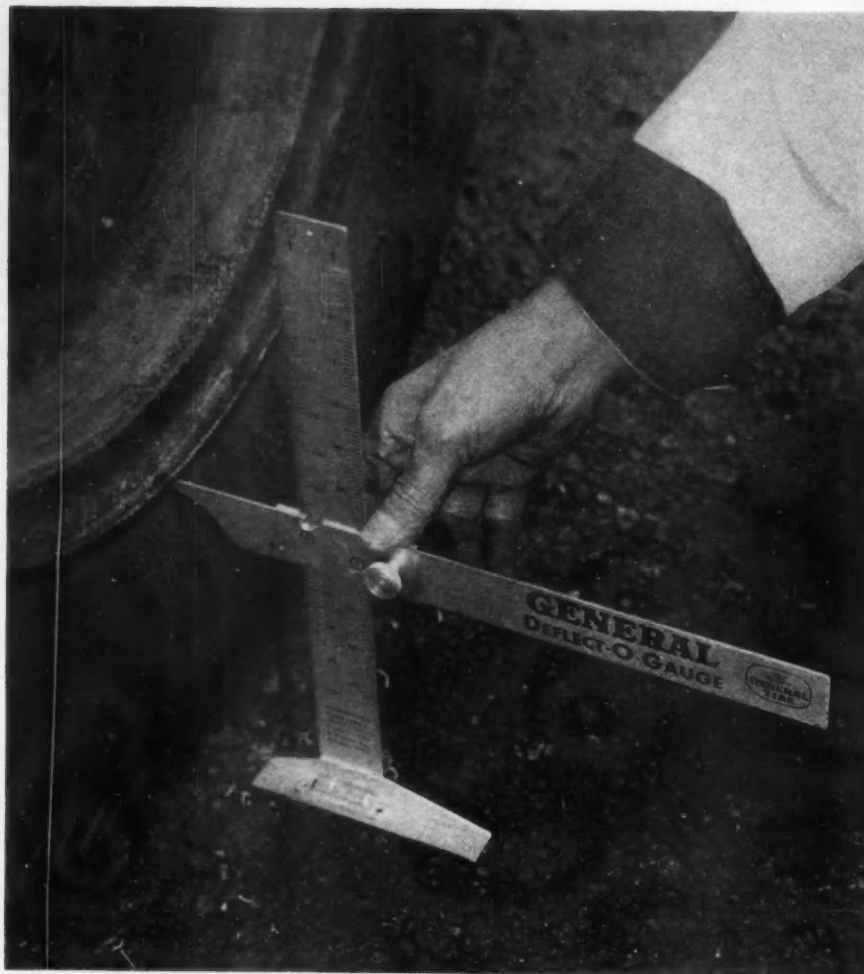


Fig. 2. After transferring reading obtained from scale No. 1, in the first step, to scale No. 2, the tire man places gage on floor, or ground, and inflates or deflates until pointer just touches rim

FITTING INFLATION TO LOAD CONDITIONS

**New portable gage checks tire deflection
according to load carried and contributes
to maximum mileage under all conditions**

THE fog and uncertainty surrounding tire inflation pressures under varying load conditions has been dispelled. Tire engineers have come through at last with a convenient and accurate gage enabling fleet operators to determine quickly

the right tire pressures for any load ready to roll out on the road.

The blue ribbon goes to General Tire & Rubber Company for developing the Deflect-O-Gauge which eliminates guesswork and a lot of gripes about the time consumed and mathe-

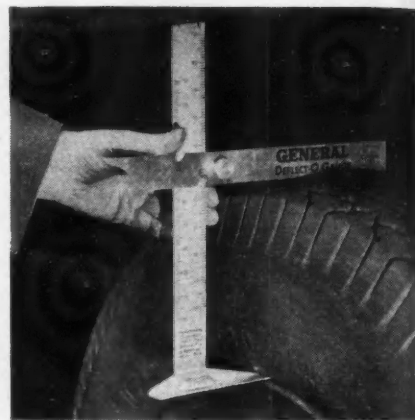


Fig. 1. The first step in determining if the tires are inflated to carry load properly

matics required to arrive at the right answer using available data.

In the past air pressure has been governed by a recommendation based on the engineering of the various sizes and types of tires. This system has been at best a hit or miss proposition, General Tire engineers pointed out.

Although the tire industry has advised truckers as to the amount of air to be carried under overload and underload there has been no scientific way to measure the amount of air needed. The practice has been to add 20 per cent to the recommended pressure for a capacity load, if that load has been increased 20 per cent.

Tires are engineered to deflect 12.8 per cent under rated capacity loading. This means there is less wear on a tire with that deflection than with any other. If there is greater deflection the tire spreads out, the fabric sidewall ultimately breaks down and the life of the tire is materially reduced. On the other hand, if there is an underload and less deflection, the wearing surface is reduced and the entire wear is concentrated on a small portion of the tread, thus causing extra wear on that portion of the tire contacting the road.

In actual operation, a tire's deflection is governed by the air pressure and the load. Deflections vary with different tires. Some airplane tires, for example, take as much as 30 per cent and some truck and passenger car tires as low as 10 per cent. However, the gage takes all these factors into consideration by means of four different scales of measurement.

(TURN TO PAGE 110, PLEASE)



Jean Babin

LIKE every operator doing business under the present wartime conditions we find ourselves faced with new problems of maintenance, due to the scarcity of certain repair parts and the government regulations on gasoline and tires. These conditions have made us realize that we will have to depend more and more on our ability to meet these new problems if we wish to continue operation of our fleet.

We believe that we are meeting these wartime problems by our careful 1,000 mile Preventive Maintenance Program which is helping to stretch the useful life of our trucks, and at the same time enabling us to operate them with maximum efficiency.

Our Preventive Maintenance Program has been in force for the past two years, and not only has our operating costs been lowered, but we also are reaping dividends now in the small amount of replacement parts which we find necessary to put into our fleet to keep it rolling efficiently.


Columbian Laundry maintains a fleet of 57 pieces of equipment, composed mostly of 1½-ton panel deliveries. These units travel over 400,000 miles per year in Newark and adjacent territory, maintaining a reliable laundry delivery service to our many customers.

It is our belief that reliability of service has been made possible primarily because of our careful Preventive Maintenance Program. This program has helped us to cut down on road failures with their inevitable delays. Before the adoption of our PM program we averaged eight road failures a month, now we are averaging less than three a month.

We employ six men in our shop; four are skilled mechanics, three are used on the day shift and one for the night shift. The mechanic that works the night shift performs such jobs as renewing oil filter elements, checking generators, carburetors, adjusting brakes and doing any small jobs that are reported by the drivers when they bring their trucks in to the

(TURN TO PAGE 80, PLEASE)

CAR NO. <input type="text"/> Date <input type="text"/>					CAR NO. <input type="text"/> Date <input type="text"/>				
COMPLETE GREASING			MASTER CYL. BRAKE FLUID		COMPLETE GREASING			MASTER CYL. BRAKE FLUID	
Date	Miles	Used Grease	Date	Date	Date	Miles	Used Grease	Date	Date
			"	"				"	"
			"	"				"	"
			"	"				"	"
			"	"				"	"
			"	"				"	"
			"	"				"	"
BATTERY WATER					BATTERY WATER				
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TERMINALS					TERMINALS				
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REMARKS:									



COLUMBIAN LAUNDRY
TRANSPORTATION DEPT.

TRUCK No. <input type="text"/>		INSPECTION REPORT	
MAKE	DATE	GEN'L MECH. COND.	DRIVER
MILES		ACCIDENT	
ENGINE	OIL FILTER	FRONT END	TRANSMISSION
MAIN BEARINGS	ELECTRIC SYSTEM	ALIGNMENT	SHIFT LEVER
ROD BEARINGS	CHARGING RATE	KING PINS	GREASE LEAKS
HEAD GASKET	AMMETER	DRAG LINK	HOUSING BOLTS
VALVES	WIRING	TIE ROD	
PISTON RINGS	STORAGE BATTERY	STEERING POST	BRAKES
MOTOR SUPPORT BOLTS	LEADS & TERMINALS	WHEEL BEARINGS	FOOT BRAKES
GOVERNOR	HEADLIGHTS	SPRINGS	HAND BRAKE
GENERATOR	TAILLIGHTS	SPRING CLIPS	FLUID LINES
STARTER	STOPLIGHT	SHOCKS	MASTER CYLINDER
DISTRIBUTOR	BODYLIGHT	REAR END	
COIL	HORN	SPRINGS	COOLING SYSTEM
SPARK PLUGS		CHECK LEAKS	RADIATOR
TIMING		PLAY IN GEARS	RADIATOR HOSE
IGNITION SWITCH		UNIVERSALS	WATER PUMP
FUEL PUMP	CLUTCH	WHEEL BEARINGS	FAN
CARBURETOR	PULL BACK SPRING	SPRING CLIPS	FAN BELT
AIR CLEANER	ADJUSTMENT	SHOCKS	WATER CONNECTIONS
GAS STRAINER			
SPARK PLUG WIRES			

LAUNDRY IRONS OUT PARTS PROBLEM

Conscientious adherence to thorough
1000-mile PM check-ups greatly reduced
wear and replacement of essential units

by JEAN BABIN

Garage Supervisor, Columbian Laundry, Newark, N. J.



Free



PUBLICATIONS



VALUABLE AIDS FOR FLEETMEN

A selected list of the latest literature — books, pamphlets and catalogs — intended to help fleet operators solve maintenance and operating problems. They are more valuable today than ever before. All are free. To get your copies simply fill in the numbers on the postcard and mail. No stamp is needed.

KEEP 'EM ROLLING

USE
THIS
POSTCARD

NO STAMP NEEDED

L78. Transmission Handbook

Here is a handy booklet entitled, "Mechanics' and Driver's Handbook," which tells all about the care, operation and overhaul of certain transmissions. It is brief, easily understood and thoroughly practical.

By following the recommendations given in the handbook, transmissions will not only give greater ease of operation, but also more reliable performance and extra years of wear-life. The instructions are complete, fully illustrated and each section is thumb-indexed for ready reference.

Operators should place a copy of this handbook in the hands of every driver and mechanic in their fleets. It should prove a boon to those operators who are training new drivers or mechanics. Write L78 on the postcard for as many copies as you need.

L79. 1943 Calendar

It is not too late for operators to secure a fine calendar. A leading truck manufacturer is now offering one free to each CCJ reader. It contains illustrations showing the various contributions to the war effort made by the motor truck during the past year.

This is a handsome calendar, with fine art work and of a size large enough to be useful in any operator's shop. Even though you have several calendars, do not miss this opportunity to get a "beauty." Write L79 on the postcard for your free copy.

L80. Cleaning Manual

Details of how steam-detergent cleaning is effectively aiding fleet operators reduce out-of-service time and speed-up maintenance work on trucks and trailers are given in a new, 24-page manual.

The manual describes a recently improved type of steam gun which, by

eliminating the need of pumps, motors, injectors and other auxiliary equipment previously required for a steam cleaning installation, make this time saving method more practical and economical than ever before. It also describes such maintenance operations as cleaning truck engines and chassis, preparing truck and trailer bodies for repainting, degreasing of parts before repair and overhaul, and similar work. Write L80 on the postcard for your free copy of this fact-filled manual.

L81. Washrooms for Women

Fleet operators who are faced with the problem of providing washrooms for women employees will be interested in a report just issued entitled, "Washroom and Locker Room Facilities."

The report discusses floor plans for dressing rooms, locker rooms and lavatories, indicating the minimum space requirements as laid down by the sanitary codes. Various types of equipment are noted and are accompanied by photographs of such equipment. This report offers operators a check list for use in their program for bringing their personal service facilities in line with the new requirements. Write L81 on the postcard for your free copy.

L82. Tire Inspector's Manual

Here is a dandy little booklet which describes causes of excessive tire wear, how to recognize them and correct them. Also given are suggestions that will help to increase tire mileage.

The information contained in this booklet will help tire inspectors and fleet operators to cooperate with the government in their efforts to conserve vital rubber. Help to conserve your tires by writing L182 on the postcard for your free copy.

L83. Aluminum Welding Manual

How to weld and brake aluminum is fully described in a new 100-page manual. This manual will help operators who have any aluminum parts which require welding or brazing. It explains how to use and work the metal correctly; how to weld and braze it.

Don't waste vital aluminum. Go through your scrap pile, pick out all aluminum parts, repair them and return them to service. Write L83 on the postcard for your free copy.

L84. Bearing Service

Now that the conservation of parts is vital, operators will be interested in a new 16-page booklet now available entitled, "How Ball Bearings are Reconditioned." Many operators are finding it difficult to obtain an adequate supply of new ball bearings for replacement purposes, therefore more attention is being focused on some method of keeping the wheels turning in the face of ball bearing shortages which are growing more acute day by day.

This booklet shows the types and styles of ball bearings that can be reground and the manufacturing procedure used. Write L84 on the postcard for your free copy.

L85. Certificate Holder

Here is a chance for fleet operators to secure a free sample of a practical and attractive holder for their Certificate of War Necessity. As it is necessary to carry a certificate on the trucks at all times, this holder will keep it clean and in good condition.

(TURN TO PAGE 100, PLEASE)



NEW PRODUCTS

KEEP 'EM ROLLING

USE
THIS
POSTCARD

NO STAMP NEEDED

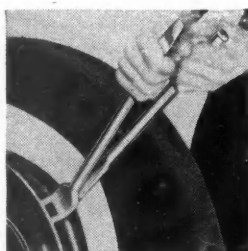
FOR FLEET OPERATORS

The latest in shop equipment, supplies, replacement parts and accessories developed by manufacturers for fleet operators. For more details of any product described, fill in the number on the postcard and mail. No stamp needed. Also use the postcard for additional information on any product advertised in this issue.

P89. Tire Remover Tool

To speed up the job of removing tires from safety rims and all standard type drop-center rims, The New Britain Machine Co., New Britain, Conn., now offers a modern tire remover.

The tool consists of two tire irons, one resembling the conventional tire iron except that it has a rack on the flat side which engages with a curved rack on the back of the forked tool. When used together, pressure is exerted on the heel bead which throws the tire bead into the drop-center well of the rim. From there on the tire is removed in the same manner, merely by reversing the two tire irons, using the flat ends of each to throw the tire off the rim.



The tool is designed to work equally well on heavy-duty truck, bus, tractor and airplane tires.

Use free postcard for more details.

P90. Plastic Tubing & Fittings

A line of plastic fuel lines, tubing and fittings for automotive gas, oil and air lines has been announced by Dorman Products, Inc., Cincinnati, Ohio. The tubing and fittings are available in all sizes to take care of all popular cars, trucks and buses. Complete fuel lines are made for most of the popular cars.

Fleet operators who are finding it more and more difficult to secure copper tubing

or brass fittings for replacement purposes, will be glad to know that these new plastic lines and fittings are available for immediate delivery.

Use free postcard for more details.

P91. Corrosion Preventive

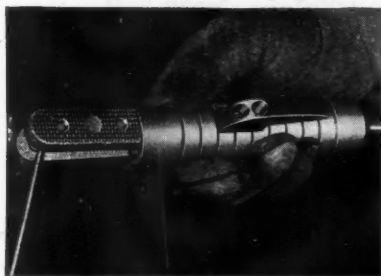
Fighting corrosion on battery cables is doubly important now, in view of the wartime value of copper. Anti-Korode, the new preparation of Arsko Chemical Co., New York, N. Y., is said to completely dissolve and prevent corrosion on battery terminals, cables and connections.

The manufacturer states that one application, made with a brush, lasts for the life of the battery as the chemical does not dry out. It is claimed further, that Anti-Korode will permanently stop future formations. When applying, it is not necessary to remove the cables.

Use free postcard for more details.

P92. Electrode Holder

A light, slender, easily handled arc welding electrode holder designed especially for welding operations in the manufacture and maintenance of commercial



truck equipment has been introduced by Jackson products, Detroit, Mich.

The holder, known as Model F-1, is made of special high conductivity copper alloy; has a rated capacity of 200 amps.; takes

rods from the smallest to 3/16 in.; has an overall length of 7 7/8 in.; weighs 12 oz. and has mechanical or solder cable connection. Its light weight and slim proportions enable the welder to manipulate it easily in tight places.

Use free postcard for more details.

P93. Gear and Wheel Pullers

Two new gear and wheel pullers are now offered by Armstrong-Bray & Co., Chicago, Ill., which should prove of interest to fleet operators. The new pullers add to a line that will take care of a wide range of jobs, covering truck, tractor, factory and farm machinery maintenance work.



The steelgrip rigid-arm pullers are of rugged construction with forged steel arms and forcing screw and are heat-treated for greater strength. They are made in three sizes to take care of most maintenance jobs.

Use free postcard for more details.

P94. Reciprocating Sander

A new model sander which provides smooth, high speed reciprocating action, is announced by the Lintern Corp.,

(TURN TO PAGE 100, PLEASE)



Form TM 58B (10)

PLANT ☐ "A" SERVICE RECORD ☐ MILEAGE ☐ G. S. NO. ☐ A

✓OK (1) Repairs Needed (2) Adjustments Made

- 1 Check radiator hold down bolts.
- 2 Check radiator for leaks.
- 3 Check radiator hoses and connections.
- 4 Check fan and belt.
- 5 Check water pump.
- 6 Check generator, belts and connections.
- 7 Check ignition system.
- 8 Check spark plug condition.
- 9 Check fuel pump and delivery.
- 10 Check carburetor float valve.
- 11 Check oil pressure and oil filter.
- 12 Tighten mainshaft and spider head nuts.
- 13 Check for oil and gas leaks.
- 14 Adjust clutch pedal clearance.
- 15 Check floor straps.
- 16 Check rear axle.
- 17 Adjust emergency brake.
- 18 Check starter and battery connections.
- 19 Inspect universal joints and flange bolts.
- 20 Tighten differential carrier and cover bolts.
- 21 Check brake fluid level.
- 22 Check front wheel alignment.
- 23 Check steering system complete.
- 24 Check springs and tighten "U" bolts.
- 25 Tighten axle nuts, flanges and all wheel lug nuts.
- 26 Check all doors, door locks and window regulators.
- 27 Check fenders, running boards, splash aprons, top coverings.
- 28 Check radiator fans.
- 29 Check and record (a) oil pressure (b) charging rate.
- 30 Check gas groups.
- 31 Check air groups.
- 32 Check heat indicator.
- 33 Check horn.
- 34 Check windshield wiper.
- 35 Test all lights.
- 36 Read test (a) brake action (b) speedometer (c) generator action (d) generator output (e) general performance.

Signed _____ Date _____

Form TM 58B (10)

PLANT ☐ "B" SERVICE RECORD ☐ MILEAGE ☐ G. S. NO. ☐ B

✓OK (1) Repairs Needed (2) Adjustments Made

- 1 Clean and adjust spark plugs, test compression with gauge.
- 2 Clean and adjust points, clean distributor head and check timing.
- 3 Test coil and condenser.
- 4 Check fuel pump bowl and strainers, test outlet pressure and tighten connections.
- 5 Check starter solenoid and brushes, tighten cable connections and check switch.
- 6 Check generator commutator brushes, set and relay armature connections and record charging rate.
- 7 Check all often, tighten connections and record oil pressure.
- 8 Check radiator—clean if needed. Tighten head-down bolts and pump gland. Replace hoses if necessary. Add to oil mixture etc.
- 9 Tighten head bolts, and lock washers.
- 10 Tighten mainshaft and flange nuts, clean air filter and adjust carburetor with vacuum gauge whenever possible. Tighten motor bolts.
- 11 Remove splash—inspect and repair bearings. Tighten oil returners if needed. Check brake linkage and drums, flange.
- 12 Adjust brakes, tighten line connections and/or check rods.
- 13 Tighten differential carrier and cover bolts. Check spring arch and tighten U bolts and shackles.
- 14 Check front spring arch, tighten U bolts, shackles, steering knuckles and king pin bolts. Check play in bearings and align wheels.
- 15 Adjust clutch pedal, hand brake and check transmission oil and for leaks.
- 16 Tighten universal joints and flanges, check axle nut bearing and flange bolts.
- 17 Grease chassis thoroughly—oil to front Thrust & DIF.
- 18 (a) Fill oil elements or parts fittings (b) Oil or grease universal joints (c) Oil generator (d) Oil distributor (e) Oil carburetor linkage (f) Oil head pump (g) Oil door hinges and bolts
- 19 Test gravity of battery. Fill with distilled water, tighten hold down bolts, check cables and ground connections. Check condition of battery box, flange.
- 20 Check all lights, wiring and horn operation.
- 21 Check condition of fenders, running boards, side aprons and top covering, flange.
- 22 Check all doors, locks, hinges, glass regulators, panels, etc. and note condition.

Read Test Note General Condition

Signed _____ Date _____



Above: Typical trucks that comprise this 581 vehicle fleet. Due to the thoroughness of this operator's PM program, it is a rare occurrence for any of these trucks to have a road failure



Joseph Lartigan

WE know, beyond question, that our preventive maintenance program has helped reduce our maintenance costs and improved the over-all condition of our trucks.

We can see the results in the better operation of the vehicles and in the appreciable reduction of road failures, especially the more serious ones. Before 1936, when we established our PM program, our road failures averaged well over two a day. Now they don't average even one a day. Conclusive evidence of this fact is supplied by the odometer in our tow car; where we once averaged 450 miles of emergency service per month, now these trips average but 25 miles per month.

The importance of this reduction in road failures to us can be appreciated best when it is compared with our fleet's annual coverage, which is approximately 4,900,000 miles, about 744,000 of which is in the San Francisco area. Our territory extends from the town of Smith River, near the Oregon line, down the state through San Luis Obispo, in central California, to Tulare, Fresno and Merced and surrounding towns in San Joaquin valley.

Our business is the manufacture and distribution of dairy products.

(TURN TO PAGE 104, PLEASE)

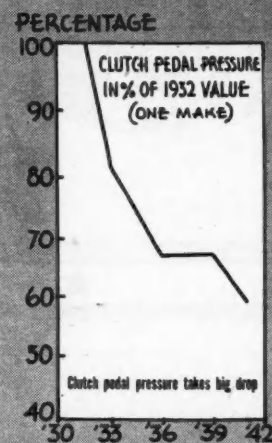
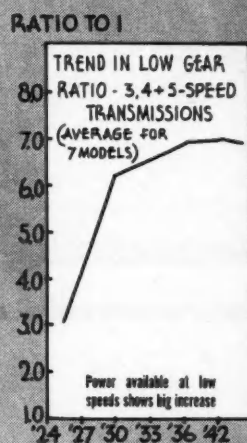
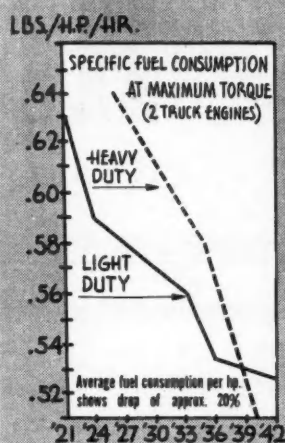
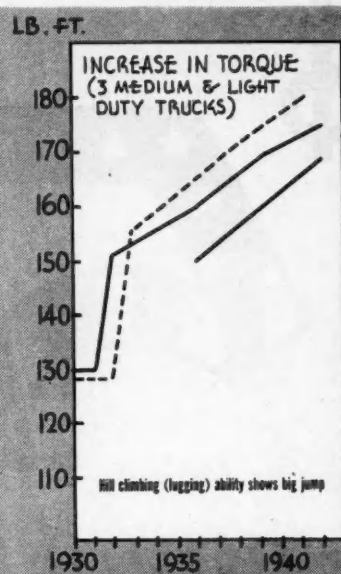
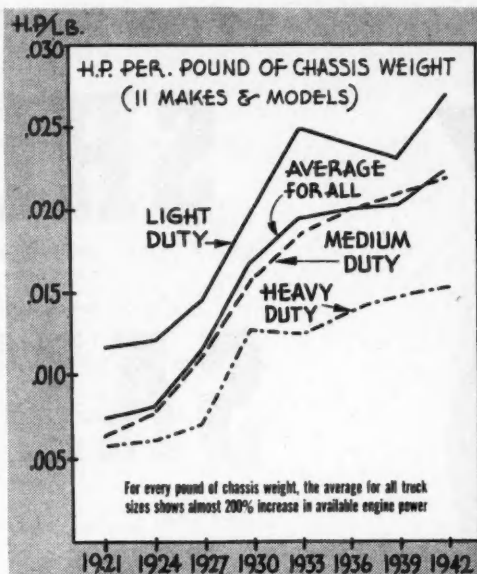
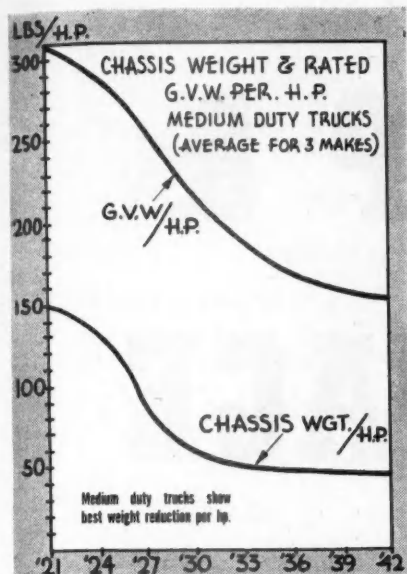
Fig. 1. Schedules A and B, illustrated above, are the basis of this fleet operator's PM program

DAIRY'S PM CUTS ROAD FAILURES 94%

Thorough check-ups on 1000 to 3000 mile schedules not only reduces breakdowns but also keeps 581 vehicles in top form

by JOSEPH LARTIGAN

Automotive Superintendent, Northern Division of California,
Golden State Company, Ltd., San Francisco, Cal.



These charts show and the article details technological development of trucks for past 20 years

COMMERCIAL VEHICLE DEVELOPMENT, '21-'42

First complete history of technological development is prepared by vehicle manufacturers for transportation study board

Harvester; George W. Malcolmson, of Dodge; A. Gelpke, of Autocar; L. C. Allman, of Fruehauf, and Frank Fageol of Twin Coach.

The following excerpts from the oral statements provide an interesting

sketch of commercial vehicle development during the last 20 years.

In the 20-year period covered by the report, technological development has been influenced infinitely more
(TURN TO PAGE 86, PLEASE)

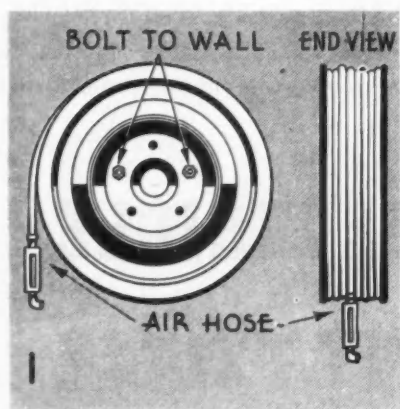
A "REPORT on Commercial Motor Vehicle Improvements from 1921 to 1942," the first complete history of technological development on commercial vehicles ever compiled, has been prepared by the Motor Vehicles Division of the Automotive Council for War Production. The manufacturers who make up this group engaged a qualified agency—Denham & Co.—to assemble the facts, a huge task in which manufacturers wholeheartedly cooperated. The large volume which makes up the report has been filed with the Board of Investigation and Research, which has Congressional authority to make a thorough study of all forms of transportation.

The purpose of the report is to emphasize the progressive nature of technical improvements in the automotive field and their effect upon the cost and usefulness of highway transportation and to furnish the Board of Investigation and Research with evidence that it would not be in the public interest if the nation's post-war transportation policy were such as to restrict the spheres in which commercial vehicles now operate.

The highlights of this report were presented orally to the Board and members of the House Committee on Interstate and Foreign Commerce. The oral presentations were made by I. B. Babcock, of Yellow Truck & Coach; Robert F. Black, of White; George M. Kellogg, of International



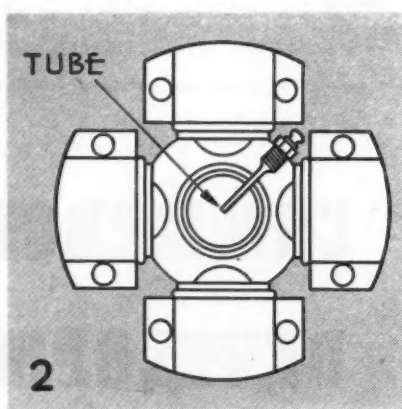
SHOP & SALVAGE HINTS



1. Air Hose Reel

by A. M. Schmitz
Hertz Truck Lease Service,
Milwaukee, Wis.

Realizing the importance of keeping our air hose in good condition and making it last for the duration, we have devised a method to help us accomplish this. We use four old drop center passenger car wheels, bolted to the shop wall in different places wherever the air hose is needed.

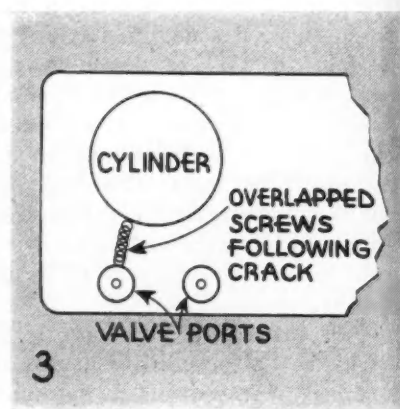


2. Saving Universals

by Hugh Tiff
Watertown, South Dakota

We were having trouble with the grease fitting in universal joints

It only takes us a few minutes to roll the air hose around a wheel, and it not only keeps the hose clean, but also keeps it off the floor where it might be run over by a truck and damaged. The wheels will hold about 50 feet of hose.



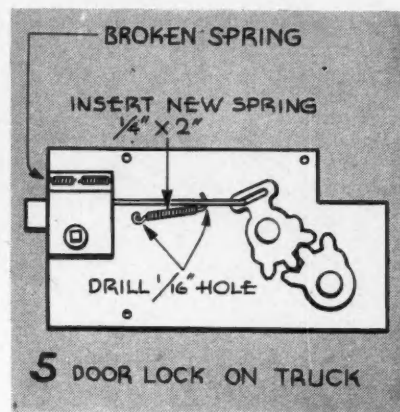
throwing grease. To overcome this trouble we simply soldered a tube, like a discarded carburetor jet, to the inner end of the grease fitting just long enough to reach the center of the joint. The tube carries the grease in far enough so that there is no centrifugal force to throw it out when the universal joint starts to revolve.

We use a tube $1\frac{1}{4}$ in. long for International models D-2, D-5, D-15. Longer lengths fit larger models.



Commercial Car Journal will pay \$5.00 for acceptable shop hints and \$5.00 for unusual parts salvage tips. Send

in as many ideas as you have to the editor. Don't underestimate your ideas. Let the editor be the judge. A photograph or a rough sketch and simple explanation in your own words are enough. CCJ will polish them up for publication. Use this opportunity to earn extra money to buy Victory bonds and help win the war.



4. Salvaging Cross Chains

by Joseph Magavosky
Modern Sanitary Dairy, Hazelton, Pa.

Here is a way to get double life out of cross chain links. We have several trucks equipped with 7.00x20 tires, using cross chains with 12 links in them. When these chains are used only the four center links hit the road and wear, the rest remain as good as new. When a cross link breaks in the center of the chain, we take the two end hooks off and splice the good ends together by cutting a link and then welding them together again. If the cross chain is too short, we use monkey-links to fasten the cross chain to the end hooks.

We also make shorter cross chains by cutting out more of the thin links, and use these on chains for smaller tires.

5. Salvaging Door Locks

by Preston Coleman, Norristown, Pa.

Some trucks use the type of door lock that is riveted and spot welded together, and when the return spring breaks, it is necessary to replace the entire lock. Locks are hard to get these days, so I devised a method of repair to salvage the old lock.

First I drill a 1/16-in. hole in the pull rod and a 1/16-in. hole in the lock plate, then I hook a 1/4 x 2-in. spring between these two points. This repair will put the lock back in service as good as new.

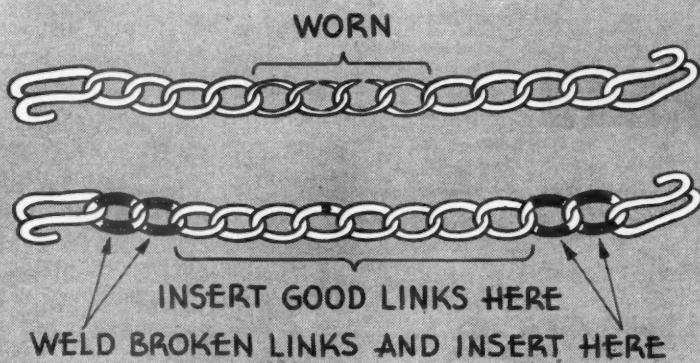
3. Salvaging Cracked Blocks

by J. C. Fisher
Fisher's Service, Moorestown, N. J.

Here is a method that we have successfully used many times in the repair of cracked cylinder blocks after they were cracked from valve seat to cylinder, and in some cases as far as 1 in. down the cylinder. First drill a 3/16-in. hole at one end of the crack. One-half of the hole should be over the crack with the remainder

in the solid metal of the block. Tap the hole using a 10-32 tap and screw in a threaded rod of soft metal, cut the rod so that you have about 1/16 to 1/8 in. extending above the crack. Drill the next hole in the crack and overlap the plug in the first hole. Continue in this manner until the crack has been completely filled with soft metal.

Now peen over the ends of plugs that have been inserted in the crack and file smooth.



4



FLEETS WARNED ON ANTI-FREEZE

WPB bans production of certain substitutes as harmful to vehicles, and OPA reduces prices of the stocks on hand

MANUFACTURE of anti-freeze solutions compounded with inorganic salts or petroleum distillates has been prohibited by an order issued by WPB's Director General for Operations. WPB's action was explained in the following statement:

"The new order (Limitation Order L-258) is issued as a result of widespread complaints from motorists, truck operators, and motor service

establishments throughout the country that certain anti-freeze solutions recently distributed in large quantities in cold weather areas have been found highly destructive to radiators, ignition systems and rubber connections in automobiles and trucks.

"The solutions prohibited by the order are termed 'deleterious anti-freeze solutions.' They include solutions compounded with inorganic salts, including calcium chloride,

magnesium chloride, or sodium chloride, as well as petroleum distillates. Their use, involving actual destruction of thousands of motor vehicles, has been studied by a committee of the War Production Board, composed of representatives of the Chemical, Conservation and Automotive Divisions, the National Bureau of Standards, the Office of Defense Transportation, and the Office of Price Administration."

In concurring with the action taken by the WPB, Joseph B. Eastman, ODT director, issued the following statement:

"Serious damage to cooling systems and motors will result from the use of anti-freeze preparations containing petroleum distillates and inorganic salt solutions. The Office of Defense Transportation is charged with the responsibility of conserving the Nation's present supply of rubber-tired vehicles. It is, therefore, the duty of this Office to warn all motor vehicle owners of the damage caused by the use of injurious anti-freeze preparations.

"I am informed that many motors already have been damaged, some beyond repair, owing to the operators' unawareness of the detrimental effects of the anti-freeze solutions used in their vehicles.

"It has been found that the average automobile cooling system designed for use with water cannot handle heavy oils successfully. Solutions compounded with inorganic salts, even more injurious to cooling systems and engines, are known to have corrosive action on engine jackets, on the solder in the radiators, and on aluminum which is sometimes used in heads. Moreover, serious difficulty is experienced if the solution comes into contact with spark plugs or ignition wires.

"Passenger car and commercial motor vehicle owners should make sure that none of the solutions found to be detrimental is used in their motors. Deleterious preparations now being used should be drained immediately from radiators to prevent further damage, and owners of cars and trucks are warned to avoid future use of these solutions."

An official of the Automotive Division at the War Production Board stated in connection with the current order:

(TURN TO PAGE 70, PLEASE)

Excerpts from a talk by Dr. Howard I. Cramer of Sharples Chemicals Corporation, before a meeting of the New York Chapter of The American Institute of Chemicals.

WE still have no true synthetic rubber. What we produce are simply synthetic, rubber-like materials, none of which possesses all of the unique properties of the natural product. Why do we not know more about rubber, when so much study has been put on the subject? The answer lies in the type of molecules. In the case of the rubber molecule, it is extremely difficult to purify. We do not know the molecular weights, so the problem is quite complicated from the molecular standpoint.

Comparison of the Properties of Synthetic and Natural Rubbers

Synthetics are superior in:

1. Resistance to deterioration by oils and organic solvents.
2. Resistance to oxidation or aging.

- a. From actinic rays.
- b. From heat.
- c. From strong oxidizing agents (Butyl rubber outstanding).

3. Lower permeability to gases.

Natural rubber is superior in:

1. Processing properties.
 - a. Power consumption.
 - b. Calendering and tubing.
 - c. Building tackiness.
2. Resiliency.
3. Resistance to flexing.
4. Tendency to stiffen at low temperatures.

The compounding art has developed at this time to the point where we feel quite sure that satisfactory tires and tubes may be manufactured from neoprene, from the butadiene types of rubber, and from butyl rubber. In the case of the latter two types of synthetics, one of the principal problems, particularly in the case of heavy duty tires, is to compound the rubber to overcome the tendency of the tire to generate excessive heat in the carcass. The present indications are that synthetic tires will be comparable, and under certain conditions, superior to natural rubber in abrasion resistance, i.e., road-wear.

Price Comparisons

Natural rubber has varied in price from \$1.25 a pound to less than three cents. The Government has



SYNTHETIC VS. NATURAL RUBBER

Excessive heat generation is principal problem in the case of heavy-duty synthetic tires, chemists' institute hears

pegged the rubber in our stock-pile at 23 cents, which was the current price just before the war.

The cost per pound of producing synthetic rubber varies according to the type: Buna S—50 cents; Hycar OR—70 cents; Polybutene—41 cents; Neoprene—65 cents; Buna N—70 cents; and Thiokol—50 cents. Without question the price of all the synthetics will be reduced, particularly when the production volume in-

creases. It is expected that Buna S can be produced at from 15 to 20 cents per pound, and Butyl from 10 to 15 cents per pound.

Chief Uses of Synthetics

Buna S is best in tires and tubes, etc. Guayule added to Buna S improves it.

Buna N is best in products where oil resistance is important.

(TURN TO PAGE 70, PLEASE)

THE Delco-Remy heavy-duty regulators designed to be set on open circuit, are illustrated in Figs. 1 and 2. Fig. 1, illustrates the two-unit regulator, which consists of a vibrating voltage unit and a cut-out relay. This type of regulator is designed for use with third brush generators, the third brush being the current limiting device. Fig. 2, illustrates the three-unit regulator; which consists of a cut-out relay, a vibrating voltage regulator unit, and a vibrating current regular unit. This type of regulator is designed for use with shunt wound generators. The current regulator unit performs the same action as the third brush, that is, it limits the maximum generator output, the difference being that the output does not taper off at high speed or with low line voltage as does the output of a third brush generator.

TWO UNIT REGULATOR TESTS AND ADJUSTMENTS

Cut-Out Relay Tests

CLOSING VOLTAGE—The relay must be checked at operating temperature. It is suggested that all tests and adjustments be made at the end of a run before the relay has cooled off, or the engine may be run at about 1500 r.p.m. until the relay reaches operating temperature. Connect an accurate reading voltmeter and ammeter and bridge the voltage regulator contact points with a jumper lead, as shown in Fig. 3. Gradually increase the engine speed and note the voltage at which relay contact points close. Decrease the engine speed and note the reverse current necessary to open the relay points. Remove the jumper lead after completing adjustments to the cut-out relay.

Generator Output

Connect the ammeter and voltmeter and bridge the voltage regulator unit contact points as illustrated in Fig. 3. Increase the generator speed until the maximum output is obtained. The output should be noted at the specified voltage, since the output varies with the voltage. To secure the correct voltage, it may be necessary to insert a $\frac{1}{4}$ ohm, or greater, variable

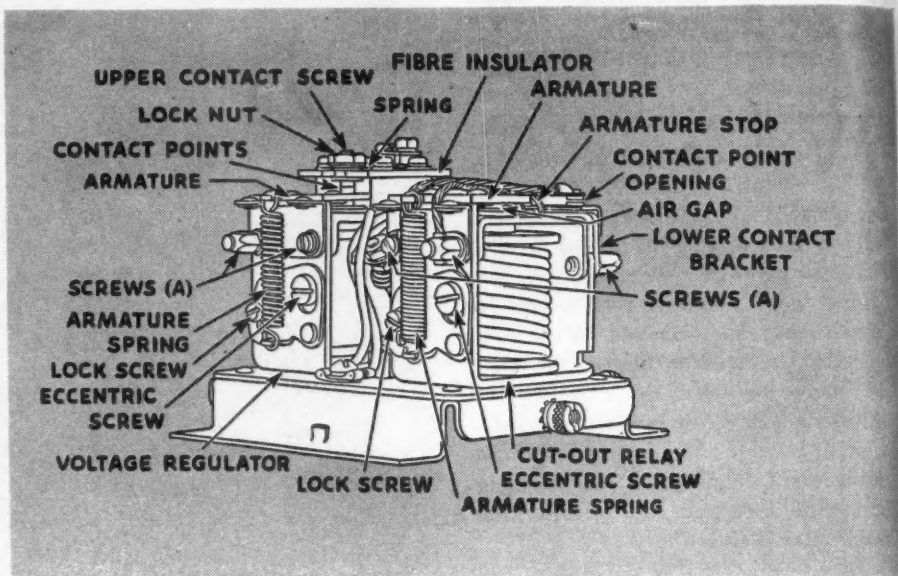


Fig. 1. Two unit heavy-duty type vibrating voltage regulator designed to be set on open circuit. This type of regulator is designed for use with third brush type generators

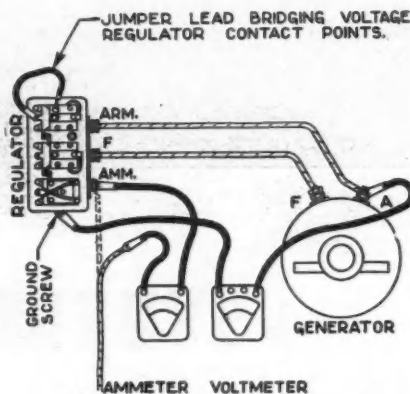


Fig. 3. Method of checking cut-out relay, generator output and regulator setting

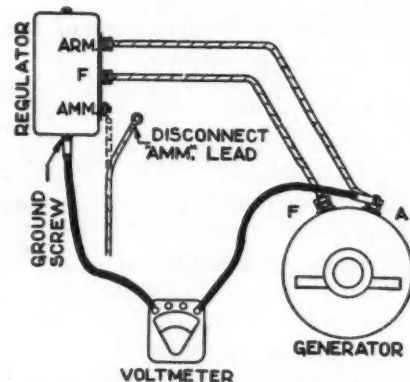


Fig. 4. Meter connections for checking the voltage setting of the voltage regulator

REGULATOR SERVICE SIMPLIFIED

resistance of sufficient current carrying capacity into the charging circuit and cut in resistance until the proper voltage is obtained. If the specified generator output cannot be obtained, it will be necessary either to adjust the third brush or remove the generator for a bench test.

Cut-Out Relay Adjustments

(Refer to Fig. 1 and check the specifications for proper setting with the manufacturer's manual or refer to the regulator setting specifications given in the April 1942 issue of CCJ.)

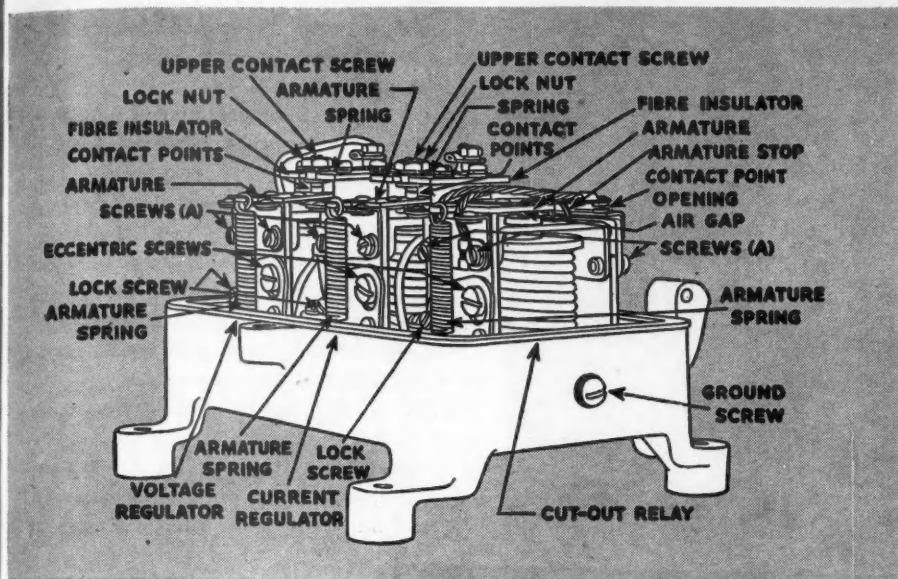


Fig. 2. Three unit heavy-duty vibrating voltage and current regulator designed to be set on open circuit. This type of regulator is designed for use with shunt wound generators

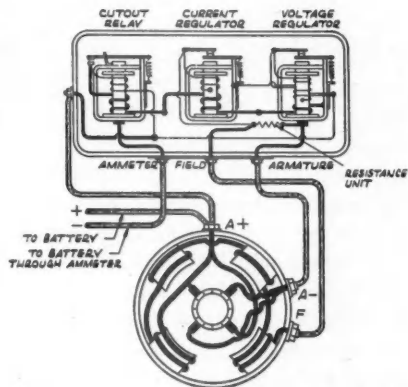


Fig. 5. Regulator and generator wiring diagram for two wire Diesel system (insulated)

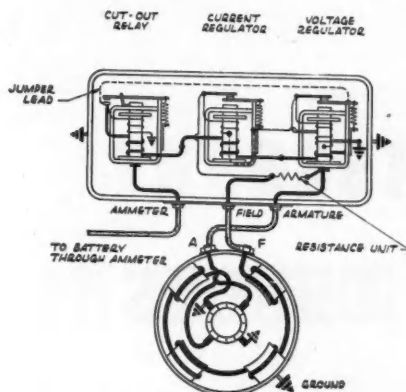


Fig. 6. Wiring diagram of a regulator and generator as used on a one wire system

A systematic step-by-step procedure shows how to make quick checks and adjustments of Delco-Remy heavy-duty type Voltage and Current Regulators

by JOHN B. YERGER

Technical Editor, Commercial Car Journal

AIR GAP—Disconnect regulator and set air gap between armature and core with contact points held in a closed position. The lower contact bracket has slotted holes for making air gap adjustments. Loosen screws (A) on both sides of relay and move bracket up or down as required to

obtain the correct air gap.

POINT OPENING—Set contact point opening by bending the armature stop. If contact points are pitted or burned, clean with a thin, fine-cut contact file before adjusting the point opening. The contact file should

never be used on other metals and should not be allowed to become greasy. Do not use file on the contacts excessively. Never use sandpaper or emery cloth to clean contact points. Caution: Never attempt to file the contact points or never close the contacts manually while the battery is connected. The resistance through the generator and relay is very low and completing the circuit to the battery when the generator is not operating would allow enough current to flow to damage or completely burn out the generator armature and the relay winding.

CLOSING VOLTAGE—The closing voltage of the cut-out relay contact points can be adjusted by loosening the lock screw and turning the eccentric screw to increase or decrease the tension of the armature spring. Increasing the tension will increase the closing voltage. When the relay and regulator are at operating temperature, check setting by bringing the generator to a complete stop, then slowly bring generator up to a speed which will cause the points to close. Tighten the lock screw securely after completing adjustments. Do not set closing voltage above the voltage required to operate the voltage regulator unit. If this occurs, the voltage regulator will operate to prevent the voltage reaching the value needed to close the relay contact points. Note: The relay must be at operating temperature and in operating position (i.e., horizontal or vertical) when the closing voltage setting is made.

VOLTAGE REGULATOR TESTS AND ADJUSTMENTS

(Refer to Fig. 4 and check the specifications for proper setting with the manufacturer's manual or refer to the regulator setting specifications given in the April 1942 issue of CCJ).

REGULATOR SETTING—The voltage regulator unit must be checked at operating temperature. Disconnect the lead from "AMM" regulator terminal and leave it disconnected while making this check. The unit is now operating on open circuit. Connect one of the voltmeter test leads to the "ARM" terminal on the regulator or the "A" terminal of generator and the other test lead to

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AIR CARGO LOOKS TO TRUCKS

Theoretical 180 m.p.h. service is reduced actually to 63 m.p.h. service by time consumed in ground operations

by THOMAS WOLFE

Vice-president of Traffic, Western Air Lines, Los Angeles, Cal.



Thomas Wolfe

Perhaps there is no other post-war subject today which has given vent to so much conjecture as air cargo. Granted that it will be one of the greatest developments in the post-war future, air cargo nevertheless

carries with it a bagful of difficult problems.

Most sound thinkers in transportation admit that air cargo, which has been throttled for the past 10 years, will burst forth after the war with a substantial penetration of the surface express market. The degree of that penetration is difficult to measure at this particular stage. But there is one sure problem which is exceedingly

important in the future of air cargo, and it must be solved before this penetration point can be reduced to an equation.

I speak of the problem of handling cargo. It is here that the airplane manufacturer and operator alike call upon the truck industry, equipment manufacturers, material fabricators and various other allied lines to come to the rescue in reshaping the thinking in the terms of air transportation.

The motor truck will be a necessary adjunct to the air transportation of the future, and in the main will be complimentary rather than competitive. It will serve as a feeder and a pickup and delivery system for mail and express on a large scale. In fact, the future of air cargo depends to a large extent upon the manner in which the motor truck helps solve the cargo-handling problem.

The motor truck diverted the short-haul business from the railroads because of its low cost and flexibility and the door-to-door delivery service which 68 per cent of shippers demand. Air cargo must likewise depend upon door-to-door delivery but the airplane, upon which millions of dollars have been expended in order that it may fly at a rapid speed, is sabotaged by slow ground speeds. Few realize that over half of the entire time spent in moving a ton of goods by air from consignor to consignee is consumed in ground handling.

For example, the average air express package today is hauled an average of 1075 miles. It travels on an airplane that has a rated cruising speed of 187 miles per hour. However, when this plane is scheduled in flight, its speed is reduced to 137 miles per hour. When ground time for servicing stops is included the speed drops to 127 miles per hour. Finally, when the time spent in picking up the package from the consignor and delivering it to the consignee is included, the speed with which the package is delivered averages 63 miles per hour.

Thus, for the average air express haul today, 51 per cent of the total time is consumed on the ground. The theoretical 3-mile-a-minute air service becomes only a 1-mile-a-minute service. Under present air express rates of approximately eight times ground speed rates, the shipper is paying a premium for "theoretical"

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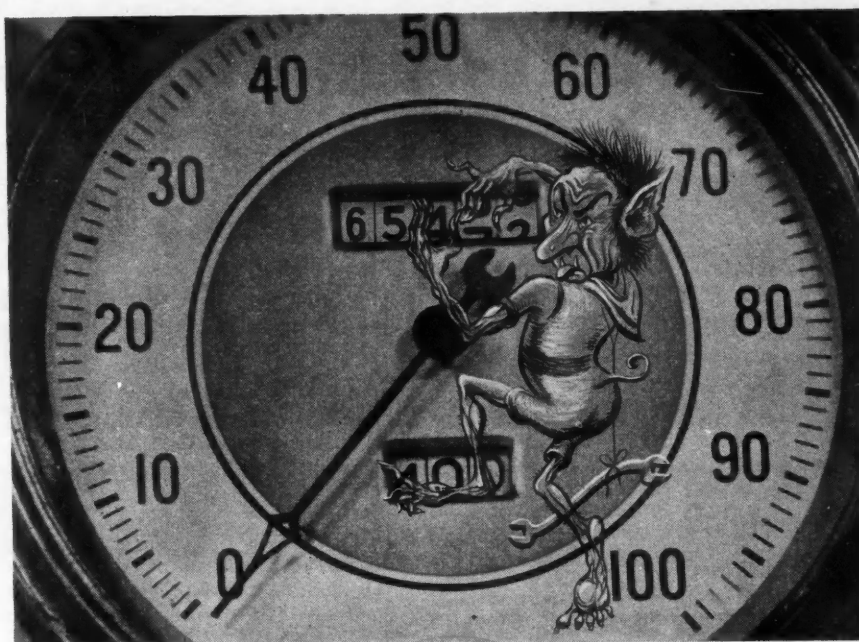
IT WILL probably come as a surprise to many fleet operators who pride themselves on their operating records that their mileage figures are wholly inaccurate and that, consequently, their cost per tire mile, miles per gallon of gas, miles per quart of oil and other cost analyses do not reflect the true state of affairs. This fact, coupled now with the necessity of supplying the Office of Defense Transportation with accurate mileage records, has caused a focusing of attention on the devices that record vehicle mileage.

There are two devices that are used on trucks to record vehicle mileage. One is the odometer (or mileage meter) which is incorporated in the speedometer dial located on the dash. The other is the hub-odometer, which is a device that is attached to the hub of a truck wheel. Although both devices are designed to serve the same purpose, that is, to indicate the actual mileage traveled by the vehicle on which they are installed, there is nevertheless a variation in the accuracy of the two devices.

A dash odometer is designed to record mileage only when a vehicle on which it is installed is traveling in a forward direction. When a vehicle is traveling in a backward direction, such as backing up to a loading or unloading platform or backing up to park, the dash odometer not only does not add this reverse mileage to the total, but actually DEDUCTS the amount which the vehicle traveled in reverse.

Also, the amount of mileage deducted by reverse travel must be made up by forward travel of the vehicle before the meter starts adding to the mileage recorded up to the moment of reverse travel. The simplest way to illustrate the effect of this action is to imagine a vehicle with the dash odometer registering zero mileage. If this vehicle backs up two-tenths of a mile and then travels forward two-tenths of a mile the odometer will still register zero miles, although the vehicle actually traveled four-tenths of a mile in all.

There is no way by which the dash odometer on a vehicle can be changed to record both forward and backward mileage; in other words, the total mileage of a vehicle. Therefore, the only way that an operator can be sure he has a more nearly accurate



THERE'S A GREMLIN IN MILEAGE RECORDING

Mileage deducted by dash odometer for reverse travel must be made up by forward travel, making total record inaccurate

record of the total mileage covered by a vehicle or a fleet of vehicles is to estimate the amount of mileage that the vehicles travel in reverse, double this amount and add it to the total mileage that is recorded on the dash odometer.

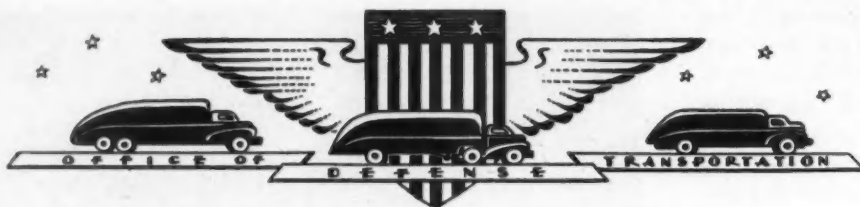
Operators whose vehicles are equipped with hub-odometers have nothing to be concerned about and can heave a sigh of relief.

A hub-odometer is designed to register the actual distance traveled by a vehicle, whether the vehicle is running forward or backward. Due to

the construction of the hub-odometer, which employs a cam and lever action, each revolution of the wheel, either forward or backward will rotate the cam one revolution which in turn will rotate the lever and turn the gears that register the mileage.

Both dash odometers and hub-odometers are geared at the factory for tire size, wheel size and rear axle gear ratio of the vehicle on which they are to be installed. Any change in gear ratio, tire size or wheel size, which is made by an operator to a

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ODT NEWS

Emergency Shipments Get Permit to Top 35-Mile Limit

Beginning March 1 motor carriers engaged in making emergency deliveries for the Army, Navy, U. S. Maritime Commission and the War Shipping Administration will be permitted to operate their trucks in excess of 35 miles an hour, provided the vehicles carry certificates of exemption and display pennants indicating they are engaged in emergency service.

The action has the approval of Rubber Director William M. Jeffers for a 60-day trial period.

In order to facilitate emergency delivery of war materials, ODT restrictions on overloading, underloading, hauling over circuitous routes, call-backs and limited deliveries also were lifted on trucks carrying emergency loads for the four agencies.

Emergency pennants must be displayed by trucks exceeding the 35-mile speed limit. Certificates of Exemption must also be carried on the vehicles. If exempted operations do not require speed in excess of 35 miles an hour, certificates must be carried but the pennants must not be displayed.

Motor carriers performing expedited service may obtain certificates of exemption at ODT district offices, from state motor trucks associations affiliated with the American Trucking Associations, Inc., and from offices of the Army Air Forces, the Traffic Control Division of the Transportation Corps, the Maritime Commission and the War Shipping Administration. Truck operators may purchase "V Emergency Pennants" from state trucking associations affiliated with the American Trucking Associations, Inc. Should an operator require a pennant on short notice, however, one may be loaned him by any of the four agencies, with the understanding that it be returned immediately upon completion of the trip.

Eastman Anticipates Need for Change of 35 m.p.h. Limit

Joseph B. Eastman, director of the Office of Defense Transportation, has urged state legislatures considering 35 m.p.h. speed laws to enact such laws so as to permit their Governors or designated state agencies to change the speed limit, if this action should be found necessary at any time.

"Experience may dictate the wisdom of changing the present 35-mile speed limit to some extent on short notice," Mr. East-

man said. "If a maximum rate of speed at which motor vehicles might travel were fixed by statute, legislative action would be necessary to change the regulation. Authorization of the Governors or designated agencies of the various states to cooperate with Federal agencies in changing the national speed limit on short notice in the interest of conservation would solve the problem."

No Operator Need Be Without Gas While Awaiting Certificate

Under fuel rationing procedures for commercial motor vehicles now in effect, no operator need do without gasoline while his application for a Certificate of War Necessity or a request for an adjustment of his Certificate is pending, according to ODT Director Eastman.

ODT procedures provide for the immediate transport needs of commercial motor vehicle operators under three sets of circumstances. These are:

1. That the Applicant has applied for, but has not received nor been denied a Certificate of War Necessity. In this case the applicant will merely have to affirm this fact to his local War Price and Rationing Board to receive sufficient ration coupons to operate for 30 days, or until March 31, whichever is the shorter period.
2. That the applicant has received a valid Certificate of War Necessity. Presentation of such a Certificate to the operator's local rationing board will enable the operator to obtain sufficient coupons for the amount of gasoline allowed him by his Certificate. At the time he applies for his first-quarter ration, he will also be given the coupons for his second three-month period, so that an additional trip to his ration board will not be necessary.
3. That a request for more gallonage than the ODT certificate allowed has been submitted to the ODT and is still under consideration. The operator must prove this to his ration board by presenting a postcard notification from the ODT which acknowledges the appeal to be under consideration. This acknowledgment will be furnished the operator by the ODT—or, if the operator is a farmer, by his county Farm Transportation Committee of the USDA County War Boards—at the time the appeal is filed. Such acknowledgment will be the ration board's authority to issue sufficient ration coupons to operate for 30 days, or until March 31, whichever is the shorter period.

Except as noted above, no provision is made for operators who have failed to file applications for Certificates of War Necessity. Nor is any provision made to issue additional temporary allotments to operators who believe that the gasoline allotment on their Certificate is insufficient, but who have not filed a request for adjustment.

Such operators should apply for their Certificates or for adjustment of their Certificates without delay. As soon as this is done, the applicant becomes eligible for temporary transport rations, if the ODT is unable to immediately process his application or appeal.

General Young Named Deputy Director by Director Eastman

Brigadier General Charles D. Young (U.S.A. inactive), formerly Assistant Director of the Office of Defense Transportation, has been appointed Deputy Director of that agency.

Joseph B. Eastman, ODT Director, stated that General Young would act for him, in event of his absence, on all matters requiring immediate attention. In addition, General Young will have direction and control, under Mr. Eastman, in all matters pertaining to the responsibilities of the Office of Defense Transportation as a claimant agency for domestic transportation under the Controlled Materials Plan of the War Production Board.

H. H. Kelly Heads ODT Materials Division; Kane Allocation Chief

H. H. Kelly, Assistant Director and Chief of the Allocation Section of the ODT Division of Motor Transport, has been appointed Director of ODT's Division of Material and Equipment Requirements. Matthew E. Kane, Assistant Chief of the Allocation Section, has been appointed Acting Chief.

The Division of Material and Equipment Requirements was created on Jan. 1 to perform functions in connection with designation of ODT as the claimant agency for domestic transportation under the Controlled Materials Plan of the War Production Board.

McEvoy Succeeds Atherton As Chief of ODT Field Organization

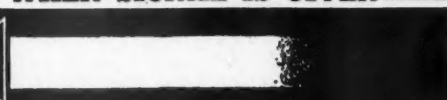







Alvin S. McEvoy has been appointed to the position of Associate Director, Division of Motor Transport, Office of Defense Transportation. He succeeds Ray G. Atherton, who resigned to become general manager of the American Trucking Associations, Inc.

Mr. McEvoy has had long experience in the motor transport field. In 1936, he was made a district supervisor in the I.C.C. Bureau of Motor Carriers, holding that post until March, 1941, when he joined the staff of John L. Rogers, director of the ODT division of Motor Transport. Prior to that he served as superintendent of bus operations for the Wisconsin Motor Bus Lines and traffic manager of the Motor Transport Co., both of Milwaukee, Wis. He assisted Mr. Atherton in setting up and

NEW ARMY AIR RAID SIGNALS

FOR EASTERN MILITARY AREA

WHEN SIGNAL IS GIVEN — IT MEANS — YOU DO THIS

 <p>BLUE WARNING</p>		<ol style="list-style-type: none"> 1. All lights out, unless specifically exempted 2. Autos continue, with lights on low beam 3. Pedestrians may walk 4. Workers remain at jobs 5. Civilian Defense mobilizes
<p>STEADY BLAST</p>  <p>RED DANGER</p>	<p>ENEMY PLANES HEADED IN YOUR DIRECTION</p> 	<ol style="list-style-type: none"> 1. Traffic stops 2. All lights blacked out, except authorized emergency lights 3. Take shelter
<p>SERIES OF SHORT OR WAVERING BLASTS</p>  <p>BLUE WARNING</p>	<p>BOMBING EXPECTED</p> 	<ol style="list-style-type: none"> 1. All lights continue out, unless specifically exempted 2. Leave shelter and resume activities 3. Resume driving with lights on low beam 4. Civilian Defense remains mobilized
<p>STEADY BLAST</p>  <p>PUBLIC RADIO ANNOUNCEMENT TELEPHONE NOTICE TO WARNINGS OR OTHER DISTINCTIVE AUXILIARY SIGNAL APPROVED FOR LOCAL USE</p>	<p>ENEMY PLANES HAVE PASSED BUT MAY RETURN</p> 	<ol style="list-style-type: none"> 1. Blackout ends 2. Civilian Defense demobilized <p>Your radio will carry the "All Clear" on frequency announced by the Army Service Command.</p>
<p>WHITES ALL CLEAR</p>	<p>DANGER APPEARS TO BE OVER</p>	

CAUTION! If enemy planes get too close before discovery, the first audible signal will be RED! Listen closely!
REMEMBER! Check your local regulations and observe them!

supervising the Motor Transport Division's field organization, now consisting of nine regional and 142 district offices.

ODT Campaigns for Joint Action Plans Among For-Hire Carriers

Industry Advisory Committees in 52 key transportation centers have been requested by the ODT to survey the operations of for-hire motor carriers—over the road and local cartage—in their territories and prepare suggested Joint Action Plans to eliminate any wasteful truck mileage which they may discover.

Each committee has been asked to take the following steps to stimulate joint action conservation plans:

1. Survey the operations of all for-hire motor carriers within their respective class operating in or through their territory. This survey should include figures on the number of fully loaded, partially loaded and empty trips run by each operator during any given period.

2. Arrange a meeting, or meetings, of all carriers affected to discuss results of the survey, with particular reference to the waste mileage reported.

3. Advise and direct the carriers in formulating Joint Action Plans to eliminate this waste mileage. Help the carriers in presenting the plans to the ODT for approval and authority to inaugurate the plans.

Traffic Signal Revision Asked To Meet Changed Conditions

ODT Director Eastman has called upon all cities and states to revise traffic signals and regulations to meet traffic conditions changed by the war.

Mr. Eastman laid down specific standards for the municipalities to follow in making the traffic adjustments by which rubber, gasoline and time will be saved. These policies were recommended to the ODT by a conference of more than 20 street traffic experts, who met recently in Washington to formulate a nation-wide program for traffic control at Mr. Eastman's request.

In a statement, Mr. Eastman said: "Adjustments in traffic control methods have not kept pace with changing conditions. This is wasting rubber, gasoline and time. In the national interest this waste cannot be permitted to continue."

New Tank Trailer Operators Given Amortization Choice

Applications for more than 320 of 892 new tank semi-trailers, production of which was recently authorized by the War Production Board to help beat the nation's petroleum transport crisis, have been approved by the ODT. Director Eastman indicated that within two months, possibly sooner, most of the new units would be in the hands of operators and releasing rail tank cars for longer hauls. Already, he said, diversion of short-haul movements has made some 14,000 tank cars available for the long shipments for which they are most effective.

At the same time, the ODT Director announced the War Department had agreed that purchasers of the new semi-trailers would be eligible for Certificates of War Necessity, allowing them to amortize their investments in the units over either a five-year period or the period elapsing between

the purchase and the end of the war emergency.

The plan is designed to protect operators on their investment in equipment which is essential to the war program and which the operators would not buy under normal circumstances.

ODT Sets Up Maintenance Advisory Committees

In a move to safeguard the continued operation of existing automotive equipment despite serious shortages of materials and manpower, the ODT has announced that it is sponsoring the establishment of Maintenance Advisory Committees throughout the country.

The original committees are to be appointed on a temporary basis for the purpose of aiding the ODT in organizing permanent maintenance committees, the members of which will represent seven different branches of the automotive industry including private and for-hire carriers, truck factory branches, truck and automobile dealers, garages and parts jobbers.

At the same time, each ODT district office was asked to designate one staff member as "maintenance specialist."

Certain Off-Highway Vehicles Exempted from Tire Inspection

Certain unlicensed and limited-licensed commercial motor vehicles have been exempted from the tire inspection provisions of General Order ODT No. 21, Joseph B. Eastman, ODT Director, announced.

The exempted vehicles are those which, "by reason of limited license," cannot be operated over highways to get to tire in-

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ODT NEWS

(CONTINUED FROM PAGE 55)

spection stations. These vehicles still must be inspected, however, if the owner, operator or his agent, has been duly designated as a tire inspector or is qualified to become one.

Dairy Farmers, Carriers and Processors Work Out Plan

An industry transportation plan submitted by 522 dairy farmers, 75 carriers and five milk processors in Missouri and Arkansas was approved by the ODT Feb. 8. The plan will effect a saving of more than 1,500,000 truck miles annually, the ODT said.

This plan is the first approved under a new procedure announced Feb. 5 by the ODT.

The new procedure, established under the so-called Small Business Concerns Act of 1942, was agreed upon by the ODT, the War Production Board and the United States Department of Justice. It is designed to further safeguard farmers and others from prosecution under the anti-trust laws when engaging in group action to conserve transportation in the interest of the war effort.

As approved today, the industry plan consists of two sections.

The first section relocates milk pick-up routes within certain counties. Carriers will combine and revise their respective routes to eliminate non-essential mileage and obtain a maximum utilization of their equipment. The revised routes will not prevent a farmer from still choosing his market, nor will it change the price he receives for his milk.

The second section provides for the zoning of the portion of the same milkshed which serves evaporated milk plants operated by the Pet Milk Co. and the Carnation Milk Co. This section will affect 357 dairymen and 57 carriers. In the zoning contemplated, producers would be required to send milk to the nearest evaporated milk plant. However, they will receive the same price as formerly for their milk and the two plants will receive the same quantity of milk as heretofore.

Approximately 224,000 of the 1,500,000 annual truck miles saved by the plan will be conserved as a result of the second section.

Three Montana Common Carriers Enter into Joint Action Plan

A joint action plan by three common carriers operating in Montana, which is expected to result in savings of more than 90,000 truck miles annually, has been approved in a supplementary order issued by the ODT. Parties to the plan are the Northern Pacific Transport Co. of Billings, Daniels Auto Freight Lines of Butte, and Flathead Transportation Co. of Missoula.

The conservation which will be effected by the three companies will be made without any reduction in service to the public, the ODT said.

The order is titled "Supplementary Order ODT 3, Revised—13."

New Hampshire and Vermont Dairy Groups Save Miles

The ODT has approved a farm industry transportation plan which is expected to save more than 107,000 truck miles annually. The plan embraces 314 milk producers, 54 carriers and three processors serving the Colebrook milkshed of Coos County, New Hampshire, and Essex County, Vermont.

Under the plan, 20 motor carriers serving this area will suspend operation. Their operations will be absorbed by the remaining carriers without disturbing any producer's choice of market or the price received for his milk.

Proponents of the plan explained that the relocation of routes would result in a saving of more than 1800 man-days yearly.

104 New York Household Goods Carriers Form Clearing House

The largest joint action plan—in terms of the numbers of carriers participating—thus far submitted to the Office of Defense Transportation was approved by the ODT in a supplementary order.

One hundred and four common carriers of household goods operating in the New York City area will participate in the plan. The carriers will establish a clearing house for the interchange of information on available loads and empty or partially laden vehicles.

Each carrier is required under the order to register shipments with the common clearing house which they are unable to transport because of ODT loading requirements. Carriers participating in the plan are also required to register all empty or partially loaded equipment for which no shipments are available.

The order is titled "Supplementary Order ODT 3, Revised—12."

Bus and Cab Fleets Asked for Emergency Curtailment Plans

ODT Director Eastman has asked bus and taxicab operators throughout the nation to prepare immediately plans for curtailment of mileage in event of emergency.

Mr. Eastman explained that the plans were requested to prevent transportation "confusion or collapse" if gasoline or rubber shortages require emergency mileage curtailment on short notice.

The order affects only operators of fleets of 10 or more rubber-borne vehicles. The three plans would eliminate, respectively, 10, 20 and 30 per cent of all presently operated rubber-borne vehicle miles.

Converted Cars Must Meet Three Basic Requirements

To be considered a commercial motor vehicle and, thus, qualify for a Certificate of War Necessity, a private passenger car converted to haul property must meet three basic requirements, according to the ODT. The three requirements are:

1. The operator of the vehicle must actually require a property-carrying vehicle in the conduct of his business.
2. Such structural changes as were made

to convert the operator's passenger vehicle into a property-carrying vehicle must have been made for the bonafide purpose of transporting property essential to the conduct of the operator's business.

3. The vehicle must have undergone a genuine structural change, reasonably permanent in nature, so that property, rather than passengers will be transported on a reasonably permanent basis.

A converted passenger car must meet all three requirements, the ODT emphasized.

Washington Joint Information Office Closed for Lack of Traffic

The ODT has approved a petition by the board of governors of the Washington (D. C.) Joint Information Office for the closing of the office. The decision was made after a study of traffic and vehicle flow revealed that, because of the comparatively small proportion of motor freight outbound from Washington, very little conservation could be effected. Almost all of the motor-freight moving into the city is being carried in fully loaded trucks.

Abandonment of the office will not relieve carriers from the provisions of General Orders ODT 3 (Revised) and ODT 17. Carriers must now check with the offices of other carriers in attempting to obtain full loads, or to rent or lease their trucks to other carriers with freight to haul.

Army Trucks Not Bound by Certificates of War Necessity

Army trucks are not required to carry Certificates of War Necessity, according to the ODT. This means, the ODT emphasized, that no certificate is necessary in order to purchase repair parts, gasoline or tires for such trucks.

The ODT statement was prompted by complaints that garages and dealers frequently have refused to sell repair parts to drivers of Army trucks, which have had breakdowns away from their home base, because the drivers could not present Certificates of War Necessity.



The Anthony Company, Inc., was presented with the Army-Navy "E" at the company's No. 1 plant, Streator, Illinois. In return, employee representative, Wm. C. Schroeder, Sr., presented the Navy with a Bomb Trailer symbolic of the work they are doing for the Navy. Left to right are: Capt. Robert Henderson, U.S.N. (Ret.), who made the presentation; Wm. C. Anthony President; R. R. Howard, V.P. and Gen. Sales Mgr.; L. E. Walker, Supt., Anthony Co., Inc.; and Col. J. F. Butler, U. S. Army, who presented "E" pins to employees.



OPA NEWS

Temporary Transport Rations Extended in Specific Cases

In order to assure farmers and other commercial vehicle operators continued adequate mileage, the OPA at the request of the ODT made provision for the issuance of temporary transport rations beyond Jan. 31. Except on this temporary basis, all transport rations will be issued in accordance with gallonage allowed on the ODT Certificates of War Necessity.

Under provisions of Amendment No. 16 to the gasoline rationing regulations to be issued Jan. 26, 1943, temporary rations will be issued by OPA War Price and Rationing Boards after Jan. 31 under the following conditions:

1. That the applicant has applied for his ODT Certificate, but has not received it, and his application has not been denied.
2. That an appeal requesting more gallonage than the ODT Certificate allowed has been submitted to ODT and is still under consideration. The applicant must prove this by presenting to the Board a postcard notification from ODT acknowledging the appeal to be under consideration.

Temporary rations shall not be allowed for periods longer than 30 days, or until the end of the calendar quarter, whichever is less. The first calendar quarter ends Mar. 31, 1943.

Any operator who applies during the first quarter for a transport ration on the basis of a final ODT Certificate of War Necessity also will be issued rations for the gallonage allowed on his Certificate for the second quarter. This will eliminate necessity for a separate application when the second quarter begins.

OPA Permits Adding Overtime to Ceiling Prices for Repairs

When a garage specifically offers to do an automobile repair job in overtime hours, the customer requests such special service, and the work is actually done during overtime hours by mechanics who are paid time and a half, the garage may in most cases charge one and one-half times its regular customers' hourly rate, according to the OPA.

This interpretation applies where the seller in March, 1942, actually made an extra charge for overtime labor or where he did not regularly supply any overtime labor as such in March. In the first case,

the garage has its overtime charge in March as a ceiling price. In the second case, where no overtime was regularly supplied in March, the special overtime service now becomes a new or different service, and the maximum price for it is determined either by the nearest competitor's charges or by the use of the regular percentage margin mark-up formula provided by the regulation.

The only case in which the special charge cannot be made is where the garage regularly worked overtime in March without making any distinction in its charges for regular hours and overtime hours.

In all cases, overtime work at an extra charge must be specifically authorized by the customer.

Light Truck and Car Recaps With Reclaimed Rubber Unrationed

The OPA has removed rationing restrictions on recapping of passenger car and light truck tires with passenger type camelback. This means that owners of passenger cars and commercial vehicles using tires smaller than 7.50 x 20 will be able to get their casings recapped with reclaimed rubber camelback without applying for certificates. However, recapping of commercial vehicle tires with truck-type camelback, which contains a large proportion of crude rubber, continues subject to present rationing restrictions.

Small Repair Shops May Boost Maximum Prices

Acting to remove a serious threat to continuance of the essential supply of farm equipment and automotive repair services, the OPA has authorized upward adjustments of maximum charges which may be made for these services by small operators.

Suppliers of these services who have been exempted from National War Labor Board orders and who employ not more than a total of eight persons in their entire establishment may redetermine their maximum charges on a customer's hourly rate basis by adding any increase in labor cost since March, 1942, to one of the following (1) their highest March customer's hourly rate or (2) a customer's hourly rate determined by doubling the average basic wage rate paid by them at the end of March, or (3) by adding 60 cents to that basic wage rate.

Intrastate Price Adjustments Shifted to Regional Offices

Contract carriers and operators of storage and terminal services supplying services entirely within one state may now file applications for adjustment of their maximum prices with their OPA regional offices instead of sending the applications to Washington.

This provision is contained in Amendment No. 4 to Supplementary Regulation No. 15 to the General Maximum Price Regulation, effective Jan. 30, 1943.

In cases where the operation of carriers other than common carriers cross state lines and where the terminal and warehouse operators supply interstate services, the applications will continue to be received in the Washington office.

OPA pointed out that the new procedure will speed action upon the applications and will enable persons familiar with conditions in the regions affected to determine price actions. On the other hand the close association between the national OPA office and the Interstate Commerce Commission in Washington makes it imperative that interstate cases be handled in the national capital.

Emergency Tire Reserves Okay for "Grandfather" Operations

An estimated 4200 interstate bus and truck operators need no longer wait for final decision by the Interstate Commerce Commission on their applications for certificates of public convenience and necessity in order to obtain emergency reserves of tires.

If they show that they have applied for the certificates and that the ICC has authorized them to operate pending final decision on their application, the OPA will authorize their obtaining the tires provided they meet other conditions which remain the same as formerly.

The same change in the rationing order also provides that required statements be made by the operators of the vehicles, instead of as formerly, by the owners. This relieves owners from certifying to the operations and inventories of those to whom they have leased buses or trucks.

Effective date is Feb. 9.

Manual Covers Charges for Household Goods Services

Knotty problems relating to regulations covering the maximum fees charged for services are covered in a manual containing digests of interpretations published by the OPA.

The manual is the second in a series devoted to digests of interpretations of provisions covering services in the General Maximum Price Regulation and the Services Regulation (No. 165 as amended).

Following are some of the subjects covered: Maintenance of scales by a common carrier; packing and unpacking of household goods by a common carrier when not required for proper transportation; commission selling of auto repair services.

The manual also contains a section covering the determination of maximum prices under special conditions.



WPB NEWS

Parts Order Amended to Give Civilians a Better Break

Production and delivery of automotive replacement parts for civilian use are given further protection under Limitation Order L-158 as amended by the WPB Director General for Operations.

The first change made by the amendment establishes the sequence of deliveries by producers of replacement parts. Since replacement parts are sold to vehicle owners without requiring a preference rating, the bulk of purchase orders transmitted through the distributors and dealers to producers are unrated. Lack of a rating on such orders makes it increasingly difficult for the producer to schedule his production, especially in view of the fact that a certain number of purchase orders that reach him are from the Army, Navy or prime contractors, and so carry ratings.

As a result of this situation, a considerable quantity of automotive replacement parts, originally produced for civilian use, is being diverted to other purposes.

The amendment will correct this situation by authorizing producers and distributors to deliver replacement parts without regard to ratings on purchase orders bearing preference ratings of AA-3 or lower.

Thus, when a producer or distributor receives an unrated purchase order for replacement parts, he may now schedule his delivery as though the unrated purchase order actually bore an AA-2X rating. This will further increase the availability of replacement parts for civilian vehicles. The original order authorized producers of automotive replacement parts for civilian use after Sept. 1, 1942, to extend a rating of AA-2X to obtain materials needed for their production.

The second change made by the amendment invalidates purchase orders for replacement parts for delivery to or for the account of the Army or Navy of the United States, or the Maritime Commission, unless they bear a preference rating of AA-1 or higher. It is expected that this provision will also help to preserve distributors' stocks for civilian use.

104,666 Vehicles Rationed in First Eleven Months

Since the truck rationing program became effective Mar. 9, 1942, a total of 104,666 vehicles of all types has been released

up to Feb. 13, 1943. This total includes 23,290 light, 55,460 medium, and 13,146 heavy trucks; 7,601 trailers, and 5,169 miscellaneous vehicles.

200 More Large-Capacity Tank Trailers Ordered Built

Immediate construction of 200 large-capacity tank trailer units to free needed tank cars for the long-haul movement of petroleum has been approved by the WPB at the request of the ODT.

The equipment will include approximately 95 three-axle trailers and 8000-gallon trains (a trailer and semi-trailer combination); 75 semi-trailers of a capacity of 4500 to 5000 gallons for the movement of gasoline, and 30 semi-trailers of a maximum capacity of 3000 gallons for the transportation of liquefied petroleum gases. They will bring to 1092 the number of tank trailer units approved for construction since late December.

Tank Car Controls Set a Precedent for All Shipments

A new series of orders covering transportation, the first one designed to eliminate excessive hauling and transportation of less essential materials, was inaugurated by the WPB with issuance of General Transportation Order T-1.

While Order T-1 relates only to steel tank cars and steel tank trucks, it sets up the framework by which any type of shipment can be regulated as the need may arise.

While the Chemicals Division is the one mainly concerned in the original order because the materials under the control of WPB which move in tank cars come mainly under that Division, the Food Administrator is expected to add other materials to the order.

T-1 applies only to shippers and not to carriers, bringing the order under the control of WPB, which has authority over distribution of materials, rather than the ODT, which regulates the use of the railway and highway system. Where ODT permits are required, they will be appended to permits required under the order, as a matter of convenience to the shipper.

Speed Up of Tank Bodies Affects Dump Body Building

A measure to speed up production of oil tank trailers to relieve the shortage of oil

transportation has been approved by the WPB.

The new order, L-253, expedites the manufacture of the 800 oil tanks authorized under L-1-g, as amended Jan. 7, 1943, by prohibiting the production of all other types of tank bodies after Feb. 10, 1943.

All types of truck and trailer bodies are placed under rigid control by the provisions of L-253. Among the particular things it does are the following:

It lists the specific parts in which any iron or steel may be used in the manufacture of truck and trailer bodies.

It prohibits the manufacture of any "dump bodies" except one model of a light dump body and one of a medium dump body for which exact specifications are given in the order.

The order will result in a saving of more than 800 tons of iron and steel a month. It will affect approximately 500 producers of truck and trailer bodies.

Use of More Wood in Truck and Trailer Bodies Explored

More efficient use of available woods as a substitute for iron and steel in truck and trailer construction was discussed by the Body Manufacturers Industry Advisory Committee at a meeting with officials of WPB's Automotive Division and other Government officials.

Softwood plywoods bonded with phenolic resins cannot be counted on, the Committee was informed, because these resins are needed for more urgent war uses. Moreover, the supply of softwood plywoods is critical. It was suggested that certain types of hardwood plywoods made with urea resins should be considered by the industry. Gumwood plywood is available in reasonable quantities. The committee was warned, however, that even hardwood plywoods would probably become critical and that a substitute for them must be discovered and developed.

Approximately 35,000 tons of iron and steel will be needed in 1943, it was estimated, to keep the trucks and trailer bodies now in use in repair. The committee suggested that the WPB issue a limitation order controlling the amount of iron and steel used in the repair of damaged bodies.

Special Services Required on "Frozen" Vehicles When Sold

Further measures to conserve the small stocks of new automobiles and trucks held for rationing were taken by the WPB through the issuance of Conservation Order M-216-a. This order supplements M-216, issued last August, which established standards of care for the mechanical upkeep of "reserve vehicles" while in storage. The new order goes a step further in requiring that the vehicles receive special conditioning before being turned over to consumers for use.

Today's order is supplemented by OPA Amendment No. 8 to Revised Price Schedule No. 85 and Supplementary Regulation No. 14, as amended, which deny sellers of reserve vehicles the right to charge the maximum ceiling price unless the specified pre-delivery operations have been performed.

In busy New Orleans it's . . .



Exide Batteries give exceptional service in this fleet owned by the Cascade Bottling Works, New Orleans, Louisiana.

The Exide Buy to Last—Save to Win policy is a wise measure in war as well as peace . . . and Mr. Jessie L. Robertson, Cascade's operator, agrees.

MATERIALS can't be wasted these days. That's why the Cascade Bottling Works of New Orleans has Exide Batteries in its fleet of modern trucks . . . and gives them the sort of care that means longer service from these long-lived batteries. The Cascade Company reports exceptional service from its Exides. That's the sort of report you hear from all over the country.



Exide
EXTRA DUTY
BATTERIES



Exide Batteries have always been dependable, sturdy, and low in maintenance cost. Today, it's a wise rule to buy durable equipment . . . and all Exide Batteries are *built to last* . . . will *serve to win!*

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

TRAINING WOMEN MECHANICS

(CONTINUED FROM PAGE 37)

others, brought many women to his office: clerks, dancers, singers, artists, waitresses, sales girls, college girls, housewives, factory hands from non-essential and gradually shrinking industries—tall, short, plump; blonds, red heads and brunettes. He never dreamed there were so many women willing to work with tools and to substitute grease for cold cream, face powder and hand lotions.

No glamorous picture was painted to the girls: Grime, grease, no cute uniforms or cushioned chairs; maybe skinned knuckles and certainly lots of manicure trouble; starting wages nothing like some advertised in big type in ads for welding trainees, for example, in ship yards and aircraft industries. This realistic picture dampened the ardor of about half of the applicants.

Of the scores that were interviewed, only a few were hired. The principal factors that influenced final selection were applicant's sincerity, appearance (lack of excessive make-up, frilly dressing, etc.) and general intelligence as evidenced by the answers to the questions asked. If she did not shudder at the thought of having her hands soiled, if she frankly admitted that she did not know one tool from another but would do her very best to learn, if she did not appear to be the sickly or nervous type, if she was not the coquet or glamour type, she was rated as a satisfactory applicant. Husky physique was not one of the requirement, but oversize or frail females were not selected for the same reasons that similarly built men would be rejected.

As each girl was hired, she was turned over to the foreman of engine rebuilding work. Groups of two and three were started on various bench jobs, until 12 women were added to the staff. Strange as it may seem, the girls took to their new duties with interest—they were not the awkward, fumbling and stumbling frills that the men thought they would be.

Naturally, there was some confusion but the men caused most of it by gawking and joking. However, the novelty soon wore off and a healthy spirit of acceptance and co-operation resulted.

The Training Problem

The management decided that the best way to train these women was to forget their sex and adopt the same methods that would be employed for training male apprentices who knew nothing about automotive work. At that time numerous engines were being rebuilt: this, then, was the best place to start the women. They were assigned to work with seasoned men who were disassembling the engines. The procedure, the various parts and their whyfors and wherefors were carefully and thoroughly explained. The work then proceeded according to plan and the engines were reassembled and tested. Thus, by doing, the women learned—some quickly, others slowly.

One young lady, with more initiative and understanding of the work than the others, wanted to specialize in tune-up work. She was assigned to the right man who introduced her to the mysteries of analyzers, stroboscopes, etc. The same method of training followed: First she watched tests, was shown what the proper performances should be, and then how to correct faults.

After the initial training period, a few women were washed out, most of their own choice. A few more trailed out in the weeks that followed; the rest began to shape up into a promising staff. In some cases the management made transfers to replace other manpower losses. The stockroom, for example, got a couple of girls. Two women also were transferred to driving light deliveries. They took hold quickly, proving to be as good, if not slightly better, than the male drivers they replaced.

Working Hours and Pay

The women in this shop actually put in the state maximum of 44 hours. Of these 40 are basic and the balance overtime. Wages are based on prevailing rates for apprentices and non-skilled labor.

The policy of this shop has been to promote and increase wages as fast as permitted by the Wage and Hour Stabilization Act. Here, however, the management has run into difficulties which unfortunately resulted in the loss of several women. The prevailing rate in this vicinity for non-skilled automotive workers

has never been very high, due to the normally liberal supply of skilled manpower in the past.

When news of this shop's women training program gained publicity, offers of more money to the women drifted in from one direction or another, and soon sizable losses were sustained. While the shop's loss in time and money was appreciable, the management was not embittered because the reasons and motives were understandable and, in fact, expected.

However, wage adjustment is under way. As soon as official sanction is received, the management hopes to place itself in a more favorable position with respect to competitive industries.

Tools and Equipment

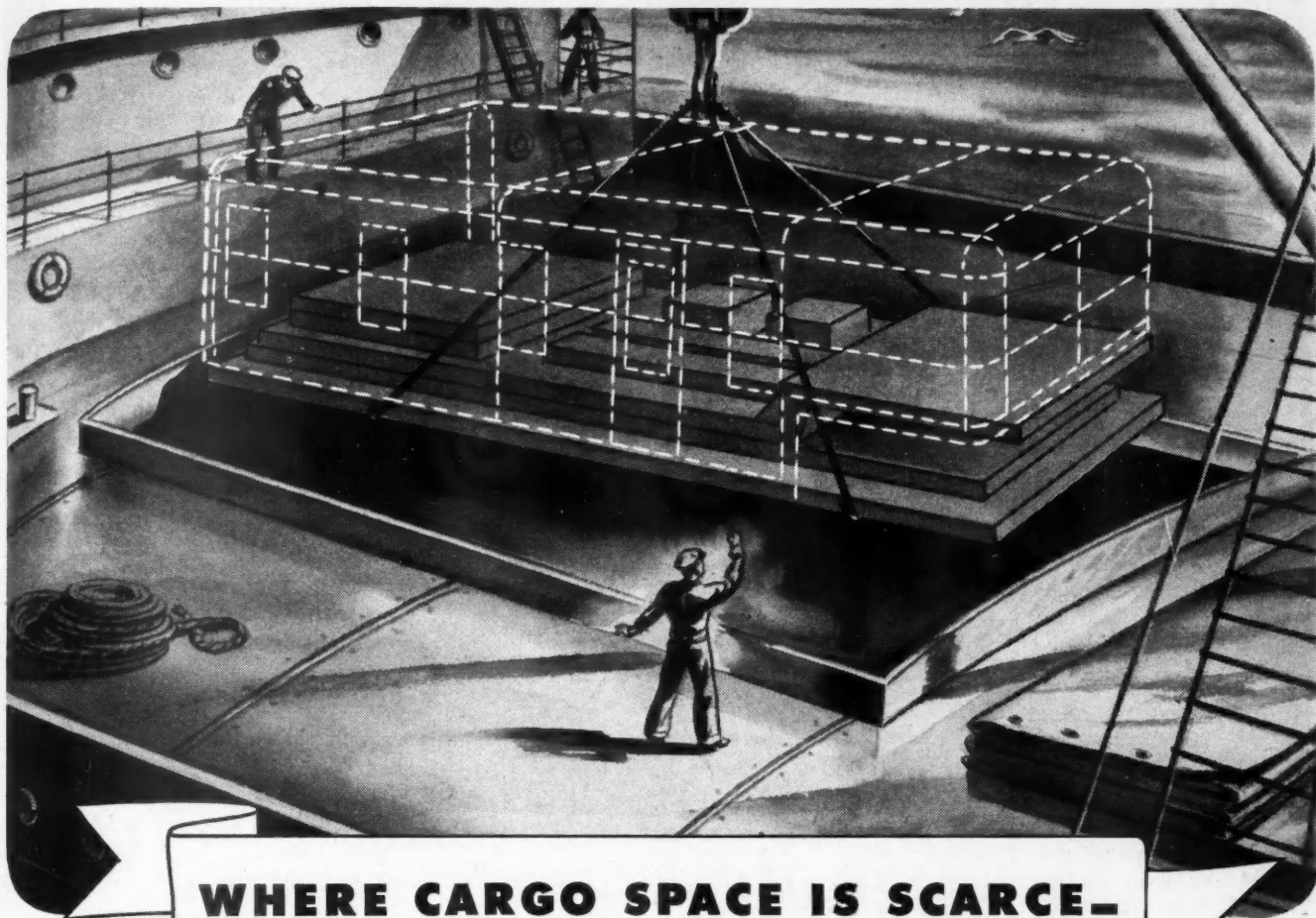
The experience of this automotive shop indicates that one of the obstacles that must be met in hiring and training women mechanics is the matter of basic tools. Naturally, a woman will not buy tools of the trade as a man who intends to make automobile repairing his life work. Moreover, in so far as industrial labor competition is concerned, employment requirements for the average factory jobs usually do not include supplying own tools. Therefore, the automotive shop is obliged to supply all necessary tools, if this type of labor is to be employed.

In addition, to compensate for the admitted differences in strength, there should be available certain pieces of time and labor-saving equipment such as small hoists, jigs, mandrels, etc., that men managed to get along without. These not only will expedite the work of the women, but also make it unnecessary for men to stop their work to assist in the removal or installation of heavy or unwieldy parts.

Work Clothes

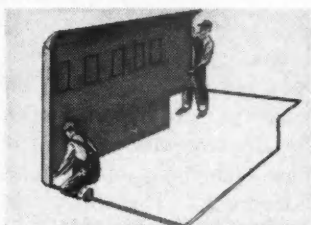
Standard women's dresses are unsuitable for shop work. Dresses catch and tear on the various projections around work benches and vehicles; they also do not provide proper, easily removed, head-to-foot protection against soilage.

A one-piece jumper, or coverall, is the best type of garment for women to wear around the shop. Conventional slacks and jacket are the
(TURN TO PAGE 62, PLEASE)

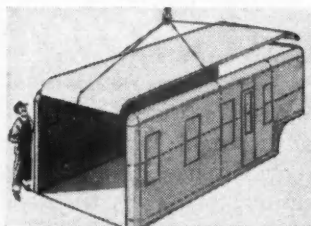


WHERE CARGO SPACE IS SCARCE—

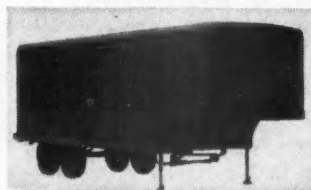
**WHERE SPEED OF ASSEMBLY
IS VITALLY IMPORTANT—
LINDSAY STRUCTURE AGAIN
"SAVES THE DAY"**



No special tools



No skilled labor



No lost time

**that's where Lindsay Structure helps
get more combat bodies to the front**

● Lindsay Structure combat bodies can be shipped "k/d" in minimum space. That's a vitally important extra value of Lindsay Structure today when supply lines are thousands of miles long . . . and cargo space so urgently needed.

Completely prefabricated bodies can be knocked down, shipped flat, and reassembled quickly at their destination without sacrifice of strength or any of the other advantages of this method of construction!

Lindsay Structure combat bodies withstand the blistering heat of the desert . . . the humidity and termites of the jungles . . . the strain and wracking of operation over shell holes, rocks, and soft sand. They have the amazing strength to withstand the unusual burdens of service, and yet, because of the unique method of assembly, they actually save steel (over a half ton per unit as in the case of the Canadian Army mobile workshop).

Thus the Lindsay Structure combat bodies provide a twofold advantage—dependable service in operation and more of them to the front in any available shipping space.

If you have problems of weight or strength or shipping space in connection with the essential housings, partitions, buildings, or combat bodies that you are building . . . investigate Lindsay Structure.

IMMEDIATE SERVICE ON YOUR PILOT JOBS. Phone or wire Lindsay and Lindsay, Adams-Franklin Building, Chicago, Ill.; or 60 E. 42nd St., New York, N. Y.

LINDSAY
STRUCTURE

U. S. Patents 2017629, 2263510, 2263511
U.S. and Foreign Patents and Patents Pending

LINDSAY STRUCTURE CAN SAVE THOUSANDS OF TONS OF STEEL PER MONTH

CCJ QUIZ

by ROBERT F. BAHL

(Correct Answers on Page 103)

Ten questions—ten points per question—gives you an opportunity to score up to one hundred on this month's CCJ Quiz. Here are the questions. Take your choice of the answers. Then check the correct answers on page 103. Seventy is the passing mark; 80 is good; 90 is excellent; and 100 . . . ah-h you must have peeked.

1.

You can blame all the restrictions on motoring and truck transportation on the sneaky Japs, who have cut off 90 per cent of our supply of . . .

- a. ameripol
- b. buna
- c. heva
- d. thiokol

2.

Charley Wilson is president of General Motors, but the postman might get mixed up unless you write it . . .

- a. Charles Edward Wilson
- b. Charles Erwin Wilson
- c. Charles Eben Wilson

3.

You probably counted them twice when you got your book, but can you tell us now how many coupons are in a full T-ration book?

- a. 24 coupons
- b. 48 coupons
- c. 96 coupons
- d. 100 coupons

4.

When WPB eased one of its oldest wartime rules by announcing the names and contracts of the ten top U. S. munitions makers, number one on the list turned out to be . . .

- a. General Motors
- b. Ford
- c. Chrysler

5.

"Alcan" is something new for trucks, but is it . . .

- a. a highway
- b. a motor fuel
- c. an anti-freeze
- d. fuel container

6.

In Brazil, trucks are converting to "gasogenio," which means that they are changing over to . . .

- a. Diesel engines
- b. charcoal burners
- c. horse drawn vehicles
- d. wooden tires

7.

What figure would you set for the number of trucks that find their way to the scrap each year? Take 1941, the last year of normal operation.

- a. 25 thousand
- b. 50 thousand
- c. 100 thousand
- d. half-million

8.

You can hardly talk about synthetic rubber without mentioning the word "butadiene," but can you pronounce it correctly? It should be pronounced . . .

- a. boo-tuh-dye'-nee
- b. boo-tad'-ee-en
- c. bewt'-a-deen
- d. bew-taa-dye'-een

9.

Can you measure up to this one? When the subject of conversation is the "Big Inch," they're talking about . . .

- a. oil pipe lines
- b. the thickness of rubber on truck tires
- c. carburetor adjustment
- d. Chrysler's new light tank

10.

Which of these truck manufacturers is advertising that "for the six time since 1852, it is supplying transport for the armed forces?"

- a. Ford
- b. Studebaker
- c. Federal
- d. White

TRAINING WOMEN MECHANICS

(CONTINUED FROM PAGE 60)

next best bet. Both are being worn in this shop. Caps to protect hair, heavier than standard shoes, preferably with metal, inbuilt toe guards, also are very desirable.

Personal Conditions

Proper sanitation and personal comfort must be provided. In this case, the problem was solved by dividing a large locker and lavatory room used by the office personnel, and cutting a door through a wall that adjoined the shop. In addition to toilets, lockers and wash basins, mirrors for powder and make-up convenience were supplied. The

management finds that even though the women do not appear to mind the dirt and grease on the job, they want to clean up and make up, in accordance with established feminine custom, before going home. Two lounges also were supplied. Contrary to expectations, the use of these conveniences was not abused.

Labor Turnover

As previously mentioned, this shop has experienced a heavy turnover due to the prevailing, and up to the present unremediable, wage inequalities as compared with war industries. There were other losses due to what may be roughly termed labor piracy. The management feels that practically all of this loss is due to the publicity the women received. Some of

this publicity led to phone calls and ultimate disappearance of the worker.

The proprietor of this shop is convinced, based upon experience, that women lack the understanding that one job may be more secure than another. They are inclined to deal with the present and ignore the future. In addition, they lack a sense of responsibility and business ethics. Without exception, every woman that left this shop did so without a moment's notice, without thought of the work in hand, and without thought of requiring business references.

Employment records show that 38 women were hired. Today only six women remain. No effort is being made to bring the complement up to the required number until the wage question is settled.

Experiment Satisfactory

As a whole, this shop is well satisfied with its experiment. The whole problem resolves itself to selecting the right kind of work and to intelligent instruction. By right work is meant most of the lighter and routine jobs that require doing in a certain way every time they are done and that can be learned easily. To an expert maintenance man this presents no problem. He simply will assign such work to the women as normally would be assigned to apprentices or mechanics' helpers. A reasonably long list of such operations can be compiled easily. This work, incidentally, should not be assigned to the women with any attitude of disparagement or discrimination. Most of these women take their jobs seriously and sincerely. Therefore, the proper attitude of importance of the work to be done should be maintained.

The management is making no attempt to make expert, all-round mechanics of the women. It concedes that it would take, first, an unusual type woman and, second, require entirely too much time and instruction.

The young lady specializing in tune-up work made one interesting comment concerning training. She had taken a course in auto repair but she averred that she learned more in two days of actual experience in the shop than in the weeks of classroom training.

END

(Please resume your reading on P. 38)



Of every 10 Mack trucks built ten years ago—7 are still doing duty! Here Peter Helck sketches a "baby Mack" at dock-side.

ITS MIDDLE NAME IS . . . WORK!

Today's Mack trucks range in size from tough little one-tonners to the biggest Prime Mover in Uncle Sam's Army. But big or little—if its last name is Mack, its middle name is *work*!

For 43 years, the world has watched the way Mack trucks waded into the toughest jobs in trucking. That is why the phrase "Built like a Mack truck" is a part of our language.



Mack Trucks, Inc., Long Island City, N. Y. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J. Factory branches and dealers in all principal cities for service and parts.



Mack

TRUCKS

FOR EVERY PURPOSE

ONE TON TO FORTY-FIVE TONS

— BUY U. S. WAR BONDS —

IF YOU'VE GOT A MACK, YOU'RE LUCKY...IF YOU PLAN TO GET ONE, YOU'RE WISE!



CCJ NEWSCAST

Auto Mechanics Classed Essential

According to General Lewis B. Hershey, Director, Selective Service System, as outlined in Occupational Bulletin No. 42, men engaged in repair and hand trade services, among which is automobile repairing, are considered in an essential activity, therefore auto mechanics, auto electricians, auto body repairmen, and foremen who supervise auto repairmen *do not need to change to other jobs.*

Operators should communicate immediately with the United States Employment Service (U.S.E.S.) office and record with them their need for men in the above classifications. As men register with U.S.E.S. for change in jobs from non-deferable to essential work they can then be directed to automotive shops for employment.

Studebaker Service Training Course

A one-week, intensive automotive service training course for men who supervise the operation and maintenance of large fleets of passenger cars and trucks has been established by the Studebaker Corp. Five automotive supervision representatives of Swift & Co. were among the first to enroll. The subjects covered were engine specifications and adjustments, clutch, transmission, rear axle, electrical system, carburetion, brakes, springs, shock absorbers, body work, steering and lubrication. In addition to Studebaker cars and trucks, the men receive practical training on other makes as well.

NAPA 1942 Sales Set Record

All officers of the National Automotive Parts Association were reelected for the ensuing year at the annual meeting in Detroit, Jan. 27 and 28. Henry Lansdale, vice-president and general manager, stated that NAPA warehouse sales volume reached an all-time high in 1942, and stressed the vital importance of efficient parts distribution and service to the maintenance of the nation's war-time automotive transportation system.

Wheel & Rim Association Conference

An educational conference, attended by wheel and rim specialists, was held at Chicago on Jan. 18 to 20. The evils of mounting tires on rims and wheels of the incorrect size was the principal topic of discussion.

Lindsay & Lindsay Purchases Dry-Zero Subsidiary

A new organization, Lindsay & Lindsay, Chicago, formed January, 1943, has purchased from Dry-Zero Corp. all the assets and business of the former Lindsay Structure Division of that company for the manufacture and sale of Lindsay Structure, a method of light steel construction.

Announcement was made by Harvey B. Lindsay, until now president of Dry-Zero Corp., who has resigned to direct the activities of the new organization. He stated that Lindsay & Lindsay was formed in order to better handle the large volume of Lindsay Structure required in the war effort.

Timken Film Promotes the Conservation Program

Timely because of its tie-up with necessary conservation measures and because of its practical value in driver and mechanic training programs is a new film entitled "Teamwork" produced by the Timken-Detroit Axle Co. The film is in kodachrome and runs somewhat over one hour. It portrays in practical fashion the responsibilities of management, drivers and mechanics in keeping trucks rolling and places particular emphasis on axle maintenance. Fleet operators, truck branches and dealers can arrange for a showing by getting in touch with the Motor Transport Cooperative Service, Timken-Detroit Axle Co., Detroit, Mich. The production is ideal for showing at safety meetings and at sessions intended to stimulate employee cooperation in conservation efforts.

Trailmobile Awarded "E"

At a colorful and impressive ceremony on Feb. 18 at the plant of The Trailer Company of America, Colonel George E. Strong, Army Air Force Public Relations Officer for the Central Procurement District, presented the coveted Army-Navy "E" award to workers and management, represented by James J. Black, vice-president in charge of engineering; Janet R. Boerger, Lou Orleck, and David R. Calhoun, Jr., president.

In accepting the award, President Calhoun pointed to the fact that less than two per cent of the concerns engaged in war work had thus far received the Army-Navy "E".



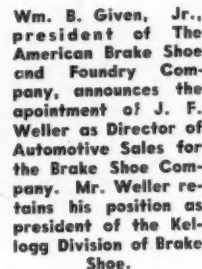
Louis G. Bissell, newly elected chairman of Mack Trucks, Inc., fills vacancy caused by the sudden death of E. C. Fink



Charles T. Ruhf, new president of Mack Manufacturing Corporation and executive vice-president of Mack Trucks, Inc.



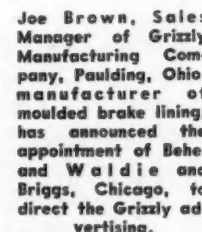
John E. Norwood has been appointed sales manager of the Replacement Sales Division, Sealed Power Corporation, Muskegon, Mich. His previous capacity was sales promotion manager.



Wm. B. Given, Jr., president of The American Brake Shoe and Foundry Company, announces the appointment of J. F. Weller as Director of Automotive Sales for the Brake Shoe Company. Mr. Weller retains his position as president of the Kellogg Division of Brake Shoe.



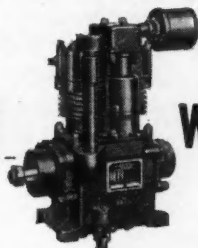
Victor J. Paquin has been appointed service manager of the Replacement Sales Division, Sealed Power Corporation, Muskegon, Mich. Formerly he was assistant sales manager.



Exclusive

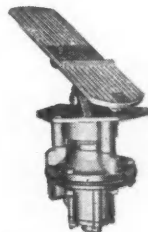
IN MIDLAND AIR BRAKE KITS

Big 7.3 CUBIC FOOT COMPRESSOR



with

governor as integral part. Fully compensating

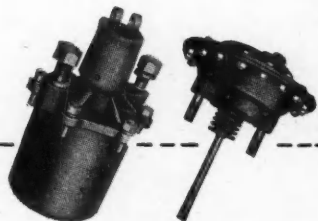


TREADLE VALVE same as used in heavy duty

trucks. YOUR CHOICE of

diaphragm chambers or

cylinders



Ask your distributor about
MIDLAND
BRAKE SURETY PLAN
and
MIDLAND
POWER BRAKE
KITS

THAT'S WHY—"THOSE WHO KNOW POWER BRAKES BEST CHOOSE MIDLAND"



MIDLAND *(Christensen)*

**POWER
BRAKES**



THE MIDLAND STEEL PRODUCTS COMPANY • CLEVELAND, OHIO

CCJ NEWSCAST

(CONTINUED FROM PAGE 64)

General Motors Submits Bid for Yellow Truck & Coach Assets

General Motors Corp. and Yellow Truck & Coach Mfg. Co., announced that an offer has been made by the former to acquire all the assets of the latter. The offer proposes that Yellow Truck assets shall be acquired in exchange for General Motors' common stock which, in turn, will be distributed by Yellow Truck to its stockholders in exchange for their stock in that company.

Rothpletz Commissioned

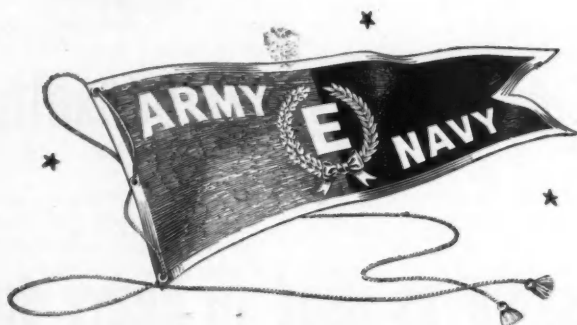
Byron Rothpletz, superintendent of maintenance of the Atlantic Refining Co., has been commissioned a captain in the Army. He is attached to the 517th Quartermaster Truck Regiment, Camp Van Dorn, Miss.

"Chuck" Quinney Dies

Charles T. Quinney, president of the Lackawanna County Chapter PMTA and manager of the Fruehauf Trailer Company's Scranton branch, died suddenly of a heart attack Jan. 31 at his home in Clarks Summit. He was 42 years old. His widow, a son, two daughters and mother survive.

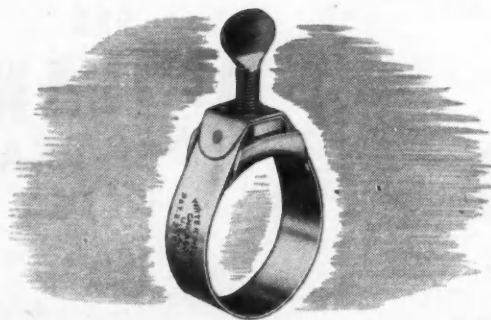


A streamlined, between-shifts ceremony marked the presentation of the Army-Navy "E" award to the Cummins Engine Co., Columbus, Ind., for outstanding production of war materials. Shown above are Rear Admiral W. C. Watts, USN (Ret.), who made the presentation; C. L. Cummins, president of the company, and Col. Walter S. Drysdale, commanding officer of Fort Benjamin Harrison.



Only One Objective - VICTORY!

The coveted Army-Navy "E" Award flag that now flies above the Wittek plant is a symbol of vital partnership between the war front and the production front. Our nation's highest industrial tribute is, to the men and women of Wittek Manufacturing Co., a challenge and a responsibility . . . an inspiration to even greater accomplishment in this one objective . . . VICTORY.



Since the beginning of modern transportation Wittek has been a producer of hose clamps for the automotive and aircraft industries. Today—Wittek Hose Clamps, known as the standard of those industries, are being used by the outstanding military aircraft and combat vehicle manufacturers.

Wittek Manufacturing Co., 4305-15 W. 24th Place, Chicago

WITTEK  **HOSE CLAMPS**
Automotive and Aviation

Tire Conservation Contest

A tire conservation contest, designed to aid the war effort by saving vital rubber, was announced by the Pennsylvania Motor Truck Assn., in cooperation with the Office of Defense Transportation. The contest is open to all Pennsylvania truck operators and their employees. Trucking employees are asked to enter the contest by submitting in writing a practical suggestion for conservation of tires.

There will be 140 awards for the best suggestions for extending life of tires. War Savings Bonds will be awarded for the three best suggestions in the state; Certificates of Merit for the best suggestions in every county. Truck owners will be awarded trophies for the best entries of large, medium and small fleets, and Certificates of Merit for the best reports of motor carriers in each county.

Entries must be submitted in writing to the PMTA, Harrisburg, Pa. Entries of truck owners should state number of units operated. Contest ends July 1, 1943.

License Fees Cut in Pennsylvania

The legislature passed a bill establishing a \$10 flat fee for passenger cars. A companion bill also passed which reduces the license fee of 1/2-ton pick-ups from \$26 to \$16 annually.

Lawrence Gotfredson Dies

Lawrence Gotfredson, founder of the Gotfredson Truck Co., died Feb. 13 at his home in Detroit. With his brother Ben, he organized the company and took active direction of it in 1925 until his retirement in 1933. A nephew, Robert Gotfredson, now operates the company.

J. F. Whitaker Elected Director

At the annual meeting of stockholders of the Whitaker Battery Supply Co., Jack F. Whitaker was made chief engineer and elected to the board of directors. Miss Adalain Lee Taylor was elected assistant treasurer.

Storage Battery Pioneer Dies

Theodore Arthur Willard, founder and, until his retirement in 1928, active head of Willard Storage Battery Co., died in his eightieth year on Feb. 3.

(TURN TO PAGE 148, PLEASE)

Now it's Tank Destroyers

STRIKING POWER . . . borne of more speed and mobility than any tank . . . make these armored, cannon-bearing half-tracs—Tank Destroyers.

Newest of the Army's mechanized equipment, they are blood-brothers of peacetime motor trucks . . . a typical example of trucks in modern warfare.

White is devoting all its manufacturing resources to building war equipment. Second only to this,

White accepts its obligation to help truck owners keep their trucks running. They are vital transportation links in a wartime economy. Every White Branch and Dealer is prepared to give every truck and bus owner a *definite* conservation plan.

THE WHITE MOTOR COMPANY, Cleveland

Builders of U. S. Army Tank Destroyers, Scout Cars, Half-Tracs, Prime Movers and Cargo Trucks, the complete line of Super Power Trucks and Tractors, City and Inter-City Coaches, Safety School Busses and the Famous White Horse.



White

FOR MORE THAN 40 YEARS THE GREATEST NAME IN TRUCKS

SAME SIZE
PART NUMBER
PRICE

YET Tyson (ALL-ROLLS) BEARINGS AFFORD...

MORE CAPACITY
LIFE
RIGIDITY



● Tyson "All-Rolls" Bearings are interchangeable with other tapered roller bearings. Part numbers and prices are the same.

There the comparison ends.

Thanks to improved design, Tyson has more rolls. Since rolls carry the load, it's obvious that Tyson has more capacity. With the load distributed over *more rolls*, it's

equally understandable that Tyson Bearings will last longer. And, with the raceway completely filled with rolls, Tyson offers maximum rigidity—freedom from deflection—so necessary in gear mountings.

Little wonder that Tyson "All-Rolls" Bearings are recognized as the answer to many a tough bearing problem.

Cageless FOR HARD SERVICE • Cage-type FOR REGULAR SERVICE

TYSON BEARING CORPORATION, MASSILLON, OHIO

Tyson

**HEAVY-DUTY BEARINGS AND
PRECISION AIRCRAFT PARTS**



Winning the war comes first. Our production is devoted to making "All-Rolls" Bearings for vital Army and Navy use, and important airplane engine parts. To the best of our

ability and under wartime restriction of critical alloy steels, we are producing "All-Rolls" Bearings for essential automotive transportation, farm equipment and industrial needs.



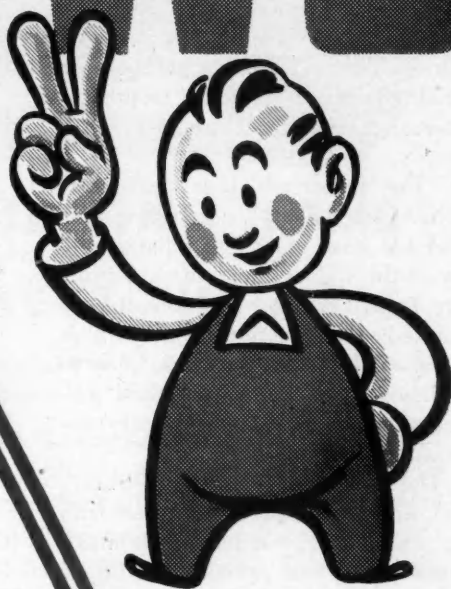
PLUS TWO

The builder of your truck selected a Fuller Transmission because he gave your job and your post-purchase needs first consideration. But not only does the Fuller Transmission give you the correct gearing for your truck's load and the route it will cover but it adds two definite values to the truck's performance.

1. Ease of operation. When the driver shifts from one speed to another the gears slip into position easily . . . smoothly.

2. Quiet running. Not only does this make driving more pleasant but it is a significant sign of less wear and longer gear life.

For the Assistance of Mechanics and Service-men—The new Fuller *Mechanic's and Driver's Handbook* gives detailed, step by step, fully illustrated, instructions for assembling or dis-assembling all models of Fuller transmissions. Write for your free copy. Address Service Department, Fuller Manufacturing Company, Kalamazoo, Michigan.



FULLER MANUFACTURING COMPANY • • KALAMAZOO, MICHIGAN

FLEETS WARNED ON ANTI-FREEZE

(CONTINUED FROM PAGE 48)

"Anti-freeze mixtures of calcium chloride and of petroleum have caused trouble for years. The Society of Automotive Engineers has warned against their use, and the National Bureau of Standards will not recommend them for government vehicles. Automobile manufacturers have warned purchasers of their cars never to use such anti-freeze mixtures.

"Unfortunately for the motorists, the labels on these calcium and petroleum solutions bear for the most part no disclosure as to their exact contents. Any preparation for anti-freeze purposes of an undisclosed composition should be analyzed or else avoided. A rough test for the calcium solution can be made by weighing the full gallon container; if it weighs between 10.5 and 11.5 pounds, it is probably based on calcium chloride. Statements that an 'inhibitor' has been added to prevent corrosion should not mislead motorists.

"The petroleum base anti-freeze solutions frequently contain kerosene. The low flash point and inflammability of the vapors constitute a definite fire hazard. These solutions have a marked solvent action on the rubber parts of the cooling system, such as radiator hose, pump seals and gaskets, all of which are extremely difficult to replace."

The Office of Price Administration followed up the production ban with an order sharply reducing the maximum prices for substitutes sold as anti-freeze and requiring labeling of the stocks on hand. Retail prices for the salt base solutions were reduced to 75 and 85 cents per gallon. The solutions made from naphtha and kerosene were reduced to 35 and 43 cents per gallon. In the case of these petroleum distillates sold as anti-freeze, the labels must carry, in addition to an identification of the contents, a warning that the solution may cause the motor to overheat and melt rubber connections.

Because of the numerous complaints of damage, the City of Rochester, N. Y., passed an ordinance prohibiting the sale, in the city, of anti-freeze solutions believed to be harmful.

Fleet operators who are in doubt about the nature of the anti-freeze they have purchased, or which they plan purchasing, should make inquiries at the nearest WPB or OPA office.

END

(Please resume your reading on P. 49)

SYNTHETIC vs. NATURAL RUBBER

(CONTINUED FROM PAGE 49)

Thiokol is outstanding for oil resisting properties and present indications are that it will be used for recaps.

Koroseal is good for specialty goods, insulated wire, etc.

The polyvinyls are used to coat fabrics.

Consumption of Natural Rubber

In normal times, tires and tubes and repairing use 76 per cent.

Industrial rubber goods take 10 per cent.

Boots and shoes use 7 per cent.

Drug sundries require 5 per cent.

Miscellaneous uses, 2 per cent.

War Requirements of Rubber

Gas masks require 2 lbs. of rubber.

Pneumatic rafts, 29 lbs.

Army trucks, 500 lbs.

Bullet-proof gas tanks, "Flying Fortress," 1,200 lbs.

Medium tank, 1,730 lbs.

Ten-ton pontoon bridge, 3,200 lbs.

Battleship (35,000 tons) requires 150,000 lbs.

Rubber Balance Sheet—Baruch Report

	Long Tons
Stockpile, July 1942	578,000
Imports July 1942 to Jan. 1944	53,000
	631,000

Requirements:

Estimated military and other essential demands . . . 428,000

Deficit to be met by synthetic rubber program . . . 211,000

The Baruch Committee stated that the minimum stockpile which we should carry is 120,000 long tons, which added to 211,000 means that the absolute minimum for 1943 production is 330,000 long tons.

The program for this synthetic rubber production this year is lagging behind from 30 days to three months, depending on the source of information.

Rubber Production Capacity (Long Tons)

	1942	Estimated 1943	Estimated 1944 (sometime)
Buna S.	60,000	400,000*	850,000*
Buna N.	18,000	20,000	25,000
Butyl	7,000	82,000*	132,000*
Neoprene	19,000	30,000*	69,000*
Thiokol	3,000	24,000	60,000*
Vinyl Polymers	30,000	40,000	50,000
	137,000	566,000	1,186,000

* Baruch recommendations.

The normal United States consumption is 600,000 long tons. If the total estimated production for 1944 is carried out, 197 per cent of the normal consumption of rubber will be represented.

What are the prospects for meeting this program? It will be a miracle if the entire program can be completed by the end of 1943 as originally scheduled. Industry has had to go into synthetic rubber production with a minimum of pilot plant experience. In spite of the press reports, the chemists and other scientific men and the workers on the program are all doing a grand job, working six to seven days a week and up to 12 hours a day, and, if the program can be carried, they will do it.

If the war lasts two or three years, we will have a well-established synthetic rubber industry. We may expect greatly improved polymers. The price competition between natural and synthetic rubbers will be keen, and will depend finally upon the wage for which the coolie will be willing to work after the war. There will probably be an over-production of rubbers, both natural and synthetic, which will have to be handled by devising new uses for rubber. Never again will we have to pay cartel prices on natural rubber, as we have been paying since 1922.

The impact of this development is going to have profound political and economic repercussions on our relationship with South America, Great Britain, and the Dutch.

END

(Please resume your reading on P. 50)



FEDERAL TRUCKS ARE BRINGING HOME *Titanium* THE ~~BACON~~ TO HELP BEAT THE AXIS



Titanium—essential element in the manufacture of many war materials including rubber, rayon, paper and those special underwater marine paints which help keep the hulls of America's battle fleets and transports in prime condition—was formerly imported in huge quantities. Reduced to a mere trickle, with no other substitute known, a new source had to be found—and quickly!

Mining engineers and chemists set to work. Tucked away in a remote section of the Adirondacks was an old iron mine, long since abandoned because of an objectionable impurity in the ore. *But that impurity was titanium!*

Today the National Lead Company is mining this strategic mineral in sufficient quantities to meet our Nation's needs. Another brilliant chapter

in America's industrial accomplishment has been written—to speed the victory!

Carrying this refined ore to the nearest railhead over miles of tortuous mountain highways was the task given a fleet of big, husky, heavy duty Federal trucks. Thus one more critical war need is being filled by Federal—another job demanding the utmost in performance, dependability and mechanical resourcefulness is matched with trucks *built to take it*. Again we repeat: "Toss the Tough Jobs to Federal!"

FEDERAL MOTOR TRUCK CO., DETROIT, MICH.



YOU CAN HELP
Keep America Free—With
Your War Bond Investments.

FEDERAL TRUCKS

Since 1910... Known in Every Country—Sold on Every Continent

SHOPMEN SPUR TVA SALVAGE

(CONTINUED FROM PAGE 39)

they may be deep in the woods. All vehicles must carry their share of the program with equal efficiency.

We accomplish this in several ways. One of the most effective means, in addition to personal supervision, is by means of our series of service bulletins which constitute, in

effect, our own private shop manual of maintenance procedure.

Years ago we established certain basic procedures; first, a thorough PM program, then we prepared a series of bulletins on best repair methods. These were duplicated and distributed to all maintenance personnel. Shop foremen were requested to follow through by checking and instructing all their men in these techniques and practices.

This system is still in use today. Whenever a better method of doing

a certain job is discovered, a bulletin on that procedure is issued to all concerned. If a previous bulletin on the subject is in the mechanic's loose-leaf binder, he is instructed to discard it and insert, in the proper place and under a designated heading, the new supplement which then becomes the latest technique and all men are expected to adopt it until a still better method can be developed; this we encourage.

As an example of the type of data issued in these bulletins, the following was picked at random:

IGNITION SYSTEM SERVICE: DISTRIBUTOR POINTS

CONSERVATION of ignition points is essential because of national shortage of tungsten. All garages must cooperate to secure longer satisfactory life from ignition points.

SAVING OF ALL TUNGSTEN POINTS must be continued. It may become necessary to reuse some of the better points. It may be possible to have such points reworked at the factory. In any event, save them. They will occupy little space and tungsten is a critical material.

RECENT RESEARCH reveals that the average actual point life is less than one-half of their potential life. Short point life is usually due to poor ignition system service. The life of these items can and must be lengthened without sacrifice of fuel economy and vehicle performance. Shortage of material makes longer point life an absolute essential. Lower octane fuel (65-68) soon to be prevalent adds to the service complications; however, lower governor settings and driving speeds will be an aid to satisfy service and longer point life.

CHECK THESE ITEMS at all 5000-mile inspections for possible improvement in service and point life:

1. Correct point clearance.
2. Correct tension.
3. Excessive condenser circuit resistance.
4. Check for smudgy line or contact point surface caused by oil vapors getting into distributor. Correct the condition (bad rings, clogged crankcase breather pipe, etc.).
5. High voltage indicated by blue scale on point surface. Improper voltage regulator operation usually responsible.
6. Pitting. Practically always due to poor system check and service.

If build up is on the positive point, condenser system (leads and condenser plates) probably is under capacity. Check capacity with tester. If OK, separate the distributor to ignition coil low and high tension leads, move leads closer to vehicle ground (block, frame, panel, etc.), or shorten leads.

If build up is on negative side, the condenser system is over capacity. Check capacity on tester. If OK, move distributor to coil low and high tension (TURN TO PAGE 74, PLEASE)



Chicago APEX WORLD'S FINEST FOOT POWER RIVETING MACHINE

Relines brakes—refaces clutches with original factory accuracy. Handles any size job from the smallest to the largest—passenger car, truck, bus, army and airplane brakes using tubular rivets. Truck fleet operators find that this heavy, powerful relining machine does the job better, quicker and with less effort. Delining, drilling, countersinking, riveting, straightening and grinding is accomplished without the operator leaving the machine. Actually, it's a complete relining-refacing department. Every known labor saving feature is incorporated in its design. Write for catalog of the complete "Chicago" line.

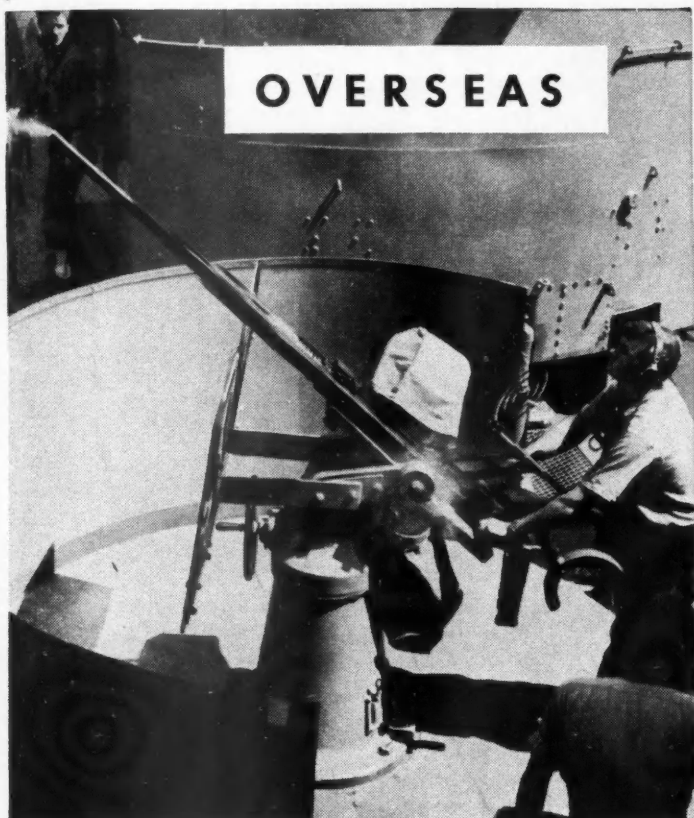
TESTED AND APPROVED FOR
U. S. ARMY AND NAVY USE
QUICK DELIVERY!

CHECK THIS LIST OF FINER FEATURES.

- ★ SET BACK DELINER... Full vision clearance. Motionless, adjustable knockout punch. Built-in old rivet collector.
- ★ DEEP THROAT... For easy working.
- ★ ADJUSTABLE ANVIL... Quickly set for any length rivet.
- ★ LOW HEAD... Specially designed to facilitate work even on small diameter bands.
- ★ SHOE STRAIGHTENERS... Built in.
- ★ DRILLING UNIT... Two-speed, V-belt drive, no hand pressure required, foot operated.
- ★ GRINDING UNIT... Fully machined, large table, 6 1/4" cushioned abrasive drum.
- ★ CAPACITY... Up to 1/4" diameter tubular or solid rivets.
- ★ POWERFUL... New toggle lever design.
- ★ QUIET... No noisy clatter.

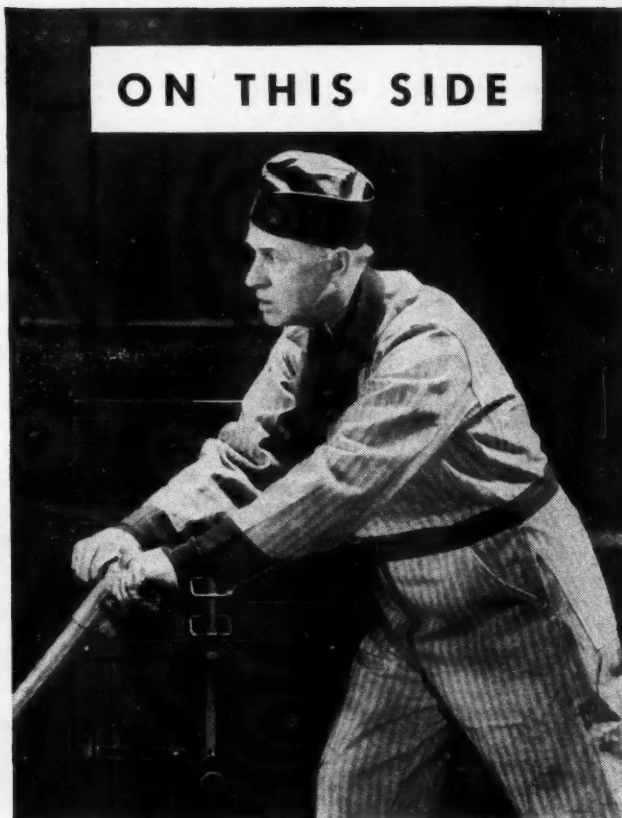
Chicago Rivet AND MACHINE CO.
9610 W. JACKSON BLVD., BELLWOOD, ILL.
(Chicago Suburb)

Fast Action Pays Off



OVERSEAS

Official U. S. Navy Photo



ON THIS SIDE

Seconds count for convoys and for your shop!

For truck operators, fast action begins in shops where American Brakeblok's Brake Lining Advisory Service reduces waste motion on brake maintenance by adapting one or more of three specialized types of brake linings to every unit in the fleet. This helps reduce relines and time spent on drum reconditioning. Ask about American Brakeblok's Brake Lining Advisory Service.



American Brakeblok Brake Lining is quickly available everywhere through the nationwide NAPA system of warehouses and jobbers.

American Brakeblok

TRADE MARK REG. U. S. PAT. OFF.

BRAKE LINING

Stopper the Pup is American Brakeblok's nationally known advertising character, appearing before 15,000,000 magazine readers every month!



American Brakeblok offers you a comprehensive line of fan belts, curved and straight radiator hose, woven and molded clutch facings.

THE AMERICAN BRAKE SHOE & FOUNDRY COMPANY

American Brakeblok Division, Detroit, Michigan

SHOPMEN SPUR TVA SALVAGE

(CONTINUED FROM PAGE 72)

sion leads closer together, away from ground, or lengthen leads. The condenser wiring systems are actually a part of the condenser since the leads and their position have capacitance as well as the condenser internal dielectrics and plates. Current carrying plates (thin sheets of conductor foil) separated by a dielectric (non conductor or even air) adjacent to each other have the ability

to absorb (store) the minute quantities of electricity. This is called capacitance. This ability prevents current flow (arc) across distributor points as they open, because the current in the leads is drawn off quickly to the condenser. Instead of jumping the air gap between the points to the ground, the current takes the easiest path to the condenser preventing point burning by an arc across them.

Knowledge of and proper attention to these facts will result in improved service.

IGNITION MECHANICS must be instructed to secure adequate bulletins, data

and information to keep up to date and thoroughly understand the required service. Responsibility for such service work, assistance of supervisors in securing information, understanding and encouragement by supervisors, and full cooperation by the mechanics (attendance all local service schools, visits to specialty shops, lots of home reading, etc.) are an essential to the success of such a plan. Such mechanics, of course, could not and need not put full time on the specialty alone, but should become the garage staff expert on the subject.

A PAMPHLET entitled "Good Ignition" recently forwarded to all garages is an excellently prepared and easy to understand source of valuable information on the subject. All mechanics should read it and all "Electric" or "Ignition" Mechanics MUST read it.

REACTION of garage supervisors and personnel to the suggested plan of specialty work will be of interest to the Division Staff. Suggestions will be sincerely appreciated, and full cooperation and assistance of the Division Staff (in securing books, data sheets, etc., not available locally) is pledged to make the plan a success.

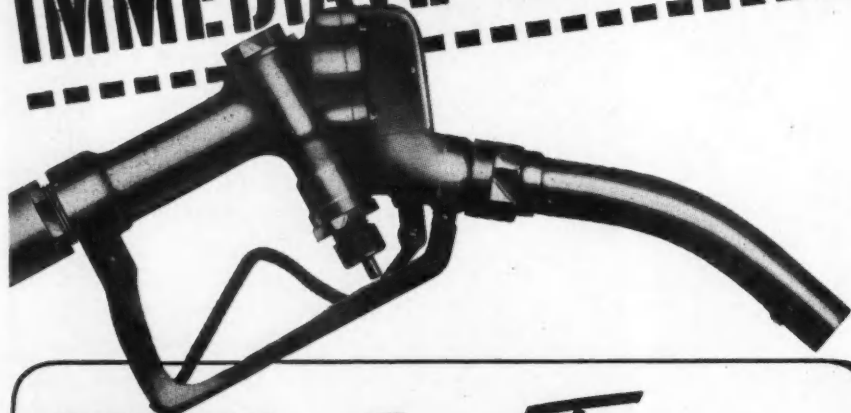
Bulletins have been issued on every phase of maintenance. We try to make them as thorough as possible, frequently including any photographs and sketches that might be helpful in making the new procedure clear to the mechanics. Not only do these bulletins accomplish our initial objective of coordinating and unifying our maintenance procedures, but they serve as a basis of a continuous training program to teach helpers and take care of personnel losses due to military or war production conditions.

As in the case of all fleet operators, we obtain ideas not only from our experience but from numerous sources; outside and from our own personnel. Personnel cooperation in this respect is excellent. A few examples of the type material we receive from our field personnel, and which we have found very useful, are reproduced at the beginning of this article. Many of these ideas were the result of service tests and experiments, which we encourage.

Service tests and field trials have brought about many new and highly efficient practices. For example, they have resulted in our using standardized, synthetic rubber lined, fabric hose for oil and gas lines. We use no copper tubes or copper-lined, flexible tubes for oil conduction because our tests show copper can't stand the abrasion and vibration. The fabric hose is used to break the

(TURN TO PAGE 76, PLEASE)

available for
IMMEDIATE DELIVERY



OPACO SAFETY-FILL NOZZLE

Patents Pending

SAVES GAS TIME MONEY

by shutting off automatically when tank is filled

FLEET OPERATORS can NOW get "Safety-Fill" Nozzles. Prevent spilling and wasting of gasoline . . . speed up servicing by equipping your pumps with "Safety-Fill" Nozzles.

SHUTS OFF AUTOMATICALLY when gas in the tank reaches the tip of the nozzle. This eliminates overflowing and wasting gasoline.

REDUCES FIRE HAZARD — Gasoline spilled on or around a truck endangers equipment which can't be replaced. "Safety-Fills" avoid this danger.

Fill in - Tear out - Mail Today!

OPACO DIVISION,
AMERICAN MACHINE and METALS, Inc.
East Moline, Illinois

Please send me FREE Bulletin and latest prices on OPACO Safety-Fill NOZZLES.

Name _____

Address _____

City _____

State _____

FASTER SERVICE — Gas tank can be filled at maximum speed. This is a big time saver during rush periods.

NO PEEK! NO LISTEN! NO GUESS!
Ideal for servicing at night and in noisy garages and terminals.

"Safety-Fill" Nozzles will soon pay for themselves. Fleet operators such as Borden Company, Yellow Cab, Checker Cab, A & P and N. J. Bell Telephone use "Safety-Fills." Write for FREE Bulletin and latest prices! Use convenient coupon at left.



OPACO

DIVISION

AMERICAN MACHINE AND METALS, INC.

EAST MOLINE, ILLINOIS



WHEN YOUR HORSES *Play Hooky*

● THE SLUDGE and gum that collect in motors makes horsepower "horses" sluggish, lazy, less efficient; they lose their pep. When that happens, they play hooky.

It's Casite's job to keep these "horses" working smoothly—to help you get every ounce of horsepower out of every drop of motor fuel.

Casite does just that. It cleans out motors and keeps them clean. It frees sticking valves and rings. It prevents sludge damage, retards varnish formation, and helps reduce friction and wear by speeding oil to the hard-to-lubricate places.

A clean motor is doubly important today. Play safe by using Casite regularly. What a difference it makes!

THE CASITE CORPORATION • HASTINGS, MICHIGAN



CASITE



CLEANS OUT MOTORS • KEEPS MOTORS CLEAN

SHOPMEN SPUR TVA SALVAGE

(CONTINUED FROM PAGE 74)

heat transfer between the copper gas line and the carburetor. Certain types of synthetic rubber lining of the hose, we find, are thoroughly satisfactory for oil and fuel hose.

Operators with starting troubles may find helpful hints in our starting practices. On hard-starting engines we use heavy duty coils, dual bat-

teries and a larger throat opening on the carburetor. We use dual batteries on all heavy trucks. In order to get by with only two sizes of batteries throughout our fleet, we use two standard size batteries in parallel on 12-volt units.

We have a very definite and carefully worked out PM program, details of which will be covered in a subsequent article. However, we can state generally, at this time, that the principal object of our PM program is to render safe, dependable oper-

ation with economy throughout the Authority. With that in mind, we are expanding our shop equipment to do much of the work that we formerly sent out.

Our shop equipment is as complete as possible, including metal spraying equipment, small lathes, gas and electric welding outfits, brake turning and relining equipment, radiator repair equipment, complete electrical test benches, woodworking equipment, boring bars, hones, headlamp machines, slow and quick battery chargers, tube vulcanizers, special tools of all kinds, AVR test sets, combustion indicators, front end machines, wheel balancers, fuel pump gages, compression gages—in fact, every sort of test and repair equipment. And we make use of every bit of this equipment constantly. Some of the things our shops are doing now include:

Welding new faces on valves. Using stainless steel and Stellite type welding rods, we put hard faces on burned or worn valves and also put on a new hard valve tip. We find these rebuilt valves cheaper than new valves, and in many cases better because both ends are faced with hard or stainless steel.

We build up bronze bushings for shackle pins.

Save oversize pistons to be turned down to standard, regroove them for off-standard rings, and use them under special conditions.

Repair axle housings and cases, welding reinforcements on housings. The results were so good on the rear drive of one make of tractor we use, that the manufacturer changed his housing design to incorporate the reinforcement.

We re-turn brake drums, using standard thickness lining and installing shims to take up the wear. (Better results are obtained by using standard thickness lining and shims than by using oversize lining, our experience shows.)

We repair cylinder heads by cold welding, electric arc welding and brazing.

All carburetor and electrical work is done in our own shop. The only exception is armature winding. Carburetors and voltage regulators are rebuilt off the vehicles and then adjusted on the vehicles. We handle this on an exchange basis, so that no

(TURN TO PAGE 78, PLEASE)

SPEEDING DOUBLES

the Wear and Tear on Tires!

Your Trucks, too, Will Do Less Speeding

when the drivers realize they can't "make up" delays by "giving her the gas" and getting in on time

THAT'S how it works. The Servis Recorder takes away the motive for speeding—removes the cause, so to speak.

SAVES ON TIRES

Of course you understand that. The point is, you can't afford to be easy-going about it any more. A tire ruined by speeding—well, that's just too bad!

ALSO SAVES ON GAS

Yes, speeding wastes a lot of gas, and it also wastes the very metal of the truck itself!

Well, the whole story is told in one circular: "Speeding and Accidents." Send for it today.

THE SERVICE RECORDER CO.
1375 EUCLID AVENUE • CLEVELAND, OHIO

The Servis Recorder

Helps Prevent Speeding and Accidents





LITTLE BUT MIGHTY

IN WAR AND IN PEACE

● Alongside a giant gun a piston ring looks insignificant. Yet both are necessary — to winning the war. Consider, for instance, that the simple installation of a set of Steel-Vent piston rings can be counted on to restore performance and economy in a worn motor—for many more thousands of miles.

Consider also that these rings are available in thousands of cities and towns—for every emergency or normal need.

HASTINGS MANUFACTURING COMPANY, HASTINGS MICHIGAN

Hastings Mfg. of Canada, Ltd., Toronto

PISTON RINGS • PISTON EXPANDERS • VALV-RINGS

And think what this means in keeping our motorized vehicles functioning, economically and efficiently, through this emergency; and of the oil and gasoline it saves.

In trucks, busses and motor cars, Steel-Vents are keeping our motorized equipment on the job—helping win the war.

TOUCH...BUT OH SO GENTLE



HASTINGS

STEEL-VENT PISTON RINGS

U. S. Patent Nos. 2,348,997, 2,375,409

Tough on oil-pumping. Gentle on cylinder walls

SHOPMEN SPUR TVA SALVAGE

(CONTINUED FROM PAGE 76)

vehicles are laid up waiting for repairs.

Permanent type anti-freeze is reclaimed by filtering, and corrosion inhibitor added.

Front axles are reclaimed after having been reamed to maximum oversize. This is done in the following way:

1. Ends of axles are heated in blacksmith-type forge.

2. Controlled cooling of ends of axles then brings about shrinkage of the holes. This involves blacksmithing experience and skill.

3. The holes are then re-reamed to standard oversize since oversize pins of that size are available.

Since the loss of metal in the final re-reaming operation is so small (about .0015) and the safety factor originally built into the axle so great, we have not found any

weakening. As the axles are forged originally (at the factory), the careful cooling after our heating process does not affect the temper.

This procedure is in the trial stage, but our results to date show five or six operations of this sort to be satisfactory. We have not had occasion to try it more than once on the same axle.

We have also handled this job without removing the axle from the vehicle, by heating the axle ends with a torch and hammering while hot. The results to date have been good. These reclaimed axles are in operation varying from the flat, sandy area near Memphis in the Mississippi valley to the winding roads in the mountainous area of east Tennessee.

Worn wheel stud holes are built up and then re-drilled to size with a jig or mandrel.

Obsolete wheels are cut down, new felloe bands brazed on and equipped with standard size rims.

Scrap from other departments and construction jobs is used to make battery cables and ground leads, some insulated and some bare. Data contained in a recent service bulletin on this subject may be of interest to other fleet operators,

"STANDARD CABLE for our service is: (1) No. 0 gauge, 127 strands, No. 21 wire; (2) No. 1 gauge, 127 strands, No. 22 wire; or (3) No. 2 gauge, 127 strands, No. 23 wire. No. 0 and No. 1 is preferable. In matching the above from scrap stocks, it will be useful to know that conductor stranded similar to the above and with conductor area of 60,000-105,000 circular mills will be acceptable."

To expand the scope of our work farther, we're considering installing furnaces to rebuild and re-arch springs.

We build all our own special equipment, such as pole trailers. Several illustrations in the February article show our efforts in this direction.

We've reworked two retired vehicles into two fire engines, using much scrap material.

Our woodworking shop makes all necessary wood and carpenter repairs. We do our own painting and refinishing.

In short, we're doing everything possible to keep TVA operations running efficiently and economically.

END

(Please resume your reading on P. 40)

AN UNDERWRITERS' APPROVED FIRE EXTINGUISHING UNIT

FOR PROTECTION OF AUTOMOTIVE
EQUIPMENT AGAINST FIRE HAZARDS



DRY CHEMICAL FIRE EXTINGUISHER

● The DuGas Dry Chemical Fire Extinguishing Unit consists of two tubes, each containing seven pounds of DuGas powder—each contained in a bracket suitable for mounting on trucks. Price of unit, \$6.50 f.o.b., Marinette, Wisconsin.

DuGas is a dry powder chemical, moisture resistant and free flowing. Extinguishes fire efficiently.

DuGas is harmless to motors, mechanical parts, materials, everything but flame. It is non-abrasive, non-corrosive, non-poisonous.

Always ready. Will not cake, harden, evaporate, spoil or deteriorate. Will not give off toxic gases. Will not conduct electricity.



This unit complies with the recently amended rule No. 3.3491 (A), Motor Carrier Safety Regulations, Revised, of the I.C.C., and meets the requirement of the Underwriters' Laboratories, Inc., war emergency specification No. 299, dated December, 1942.

DUGAS ENGINEERING CORPORATION, Marinette, Wisconsin

OWNED AND OPERATED BY ANSUL CHEMICAL COMPANY

WRITE YOUR NEAREST DISTRIBUTOR

NEW YORK CITY
Dugas Engineering Corp.
115 Broad Street

BOSTON, MASSACHUSETTS
General Equipment Corp.
261 Franklin Street

PAOLI, PENNSYLVANIA
Ansul Chemical Company

BUFFALO, NEW YORK
Bu-Ro Fire Equipment Co.
1382 Niagara Street

PITTSBURGH, PENN.
Williams & Co., Inc.
901 Pennsylvania Avenue

CLEVELAND, OHIO
Williams & Co., Inc.
3700 Perkins Avenue

CINCINNATI, OHIO
Williams & Co., Inc.
1921 Dunlap Street

COLUMBUS, OHIO
Williams & Co., Inc.
31 N. Grant Avenue

DETROIT, MICHIGAN
L. E. Averill Co.
6527 Hamilton Avenue

CHICAGO, ILLINOIS
DuGas Engineering Corp.
Rm. 1563, 20 N. Wacker Dr.

MARINETTE, WISCONSIN
Ansul Chemical Company

DULUTH, MINNESOTA
W. P. & R. S. Mars Co.
324 W. Michigan Street

KANSAS CITY, MISSOURI
Gustin-Bacon Mfg. Co.
1412 W. 12th Street

TULSA, OKLAHOMA
Gustin-Bacon Mfg. Co.
307 S. Cincinnati

FT. WORTH, TEXAS
Gustin-Bacon Mfg. Co.
710 T & P Bldg.

HOUSTON, TEXAS
Gustin-Bacon Mfg. Co.
448 M & M Bldg.

MODESTO, CALIFORNIA
Ansul Chemical Company
LOS ANGELES, CALIFORNIA
Ansul Chemical Company
451 E. Fourth Street

TORONTO, ONT., CANADA
W. L. Ballentine Co.
380 Fleet Street

ST. JOHN, NEW BRUNSWICK
CANADA
Gandy & Allison, Ltd.

HONOLULU, HAWAII
P. S. Pell & Co.
88 S. Queen Street

EXPORT AGENTS
Aeroaffiliates, Inc.
115 Broad Street
New York, New York



Check and Save

National PERIODIC INSPECTION SERVICE

The National Periodic Inspection Service is Simple and Easy to Maintain. It includes:

1. A daily inspection or trouble report for drivers.
2. A 1000-2000 mile or 30-day inspection report.
3. A 5000-7000 mile or 90-day inspection report.
4. A sticker to show when next inspection is needed.
5. A 50,000-mile Service Record Chart.
6. A Monthly Service Schedule Chart.

Write today for free samples of National Periodic Inspection Service forms . . . and with them the complete story of National SAVIT Service.

• Today, with 2-104A Heavy Duty Detergent Motor Oils becoming difficult to obtain because of war demands, it is still possible to maintain "clean engines", and conserve your man-power with National Periodic Inspection Service and National En-Ar-Co C₁ Detergent Motor Oil.



NATIONAL EN-AR-CO MOTOR OILS and LUBRICANTS
NATIONAL WHITE ROSE GASOLINE

THE NATIONAL REFINING COMPANY • CLEVELAND, OHIO
Cleveland • Indianapolis • Chicago • Peoria • Omaha • Kansas City • Memphis
East of Ohio . . . The Globe Refining Company, Cleveland, Ohio

LAUNDRY IRONS OUT PARTS PROBLEM

(CONTINUED FROM PAGE 41)

garage at night. Two unskilled men are also employed on the night shift to wash trucks, check the oil, gas, water, batteries and inflate tires to the proper pressures.

By doing these small jobs at night we have found that it helps our Preventive Maintenance Program by allowing the daytime mechanics more

time to devote to making any major adjustments or repairs that are needed.

Our paint shop, where all our trucks are completely repainted whenever needed, employs three painters. Spick and span equipment means a lot to us, we are selling a cleaning service to our customers and it follows that our contact with our customers should give a strong impression of cleanliness.

The shop equipment in our main shop consists of a grease rack, hy-

draulic lift, slow battery charger, gas welding outfit, engine test stand and analyser and front-end alignment gages. We also have additional instruments and small tools as are required to maintain our fleet at the highest operating efficiency.

As to welding, we consider it more important today than ever because of the many parts that we can save. Welding is done on such parts as fenders, running board brackets, doors, drive shafts, radiator brackets, tire racks, muffler brackets, gear shift levers and frames.

The stock room carries rebuilt units such as generators, starters, fuel pumps, carburetors and relined brake shoes. All of these units are rebuilt in our own shop. By keeping an ample supply of these rebuilt units on hand we have found that it saves considerable time when one of the original units fails on a truck. It only takes a short time to install a rebuilt unit and send the truck out again. Then the unit which failed can be rebuilt whenever we have the time.

The following is the outline of our Preventive Maintenance Program:

When our trucks are returned to the garage each night, they are gassed, oil-checked and lubricated, if due. Air pressures in tires are checked once a week and batteries are checked every two weeks. Brake fluid is checked every two weeks. We have found that this check has saved us many road failures due to leaky brakes. These checks are made by the night men and a record is entered on a report sheet, Fig. 1.

When a driver returns his truck to the garage each night he makes a report of any irregularities in the operation of his truck. If the repairs needed are minor in nature, they are attended to by the night mechanic on duty. If the repairs are of a major nature, the truck is put into the shop for the necessary work to be done by the day mechanics. The driver is given a relief truck to use while his is being repaired. We have three trucks assigned as spares.


The PM schedule, Fig. 2, is performed every 1,000 miles on each truck. It consists of a complete and thorough check of engine, oil filter, electrical system, clutch, front end, transmission, brakes, cooling system,


(TURN TO PAGE 82, PLEASE)

FLOW BENCH INSPECTION

*assures accurate
functioning of*

HANDY GOVERNORS





The Flow Bench is a practical device for simulating the conditions of engine operation. By means of this device, engine manifold and carburetor Venturi vacuums for any selected speed can be accurately reproduced. This type of device, first used as an inspection tool for carburetors, is used by King-Seeley Corporation for the production and final inspection of Handy Vari-Speed Governors.

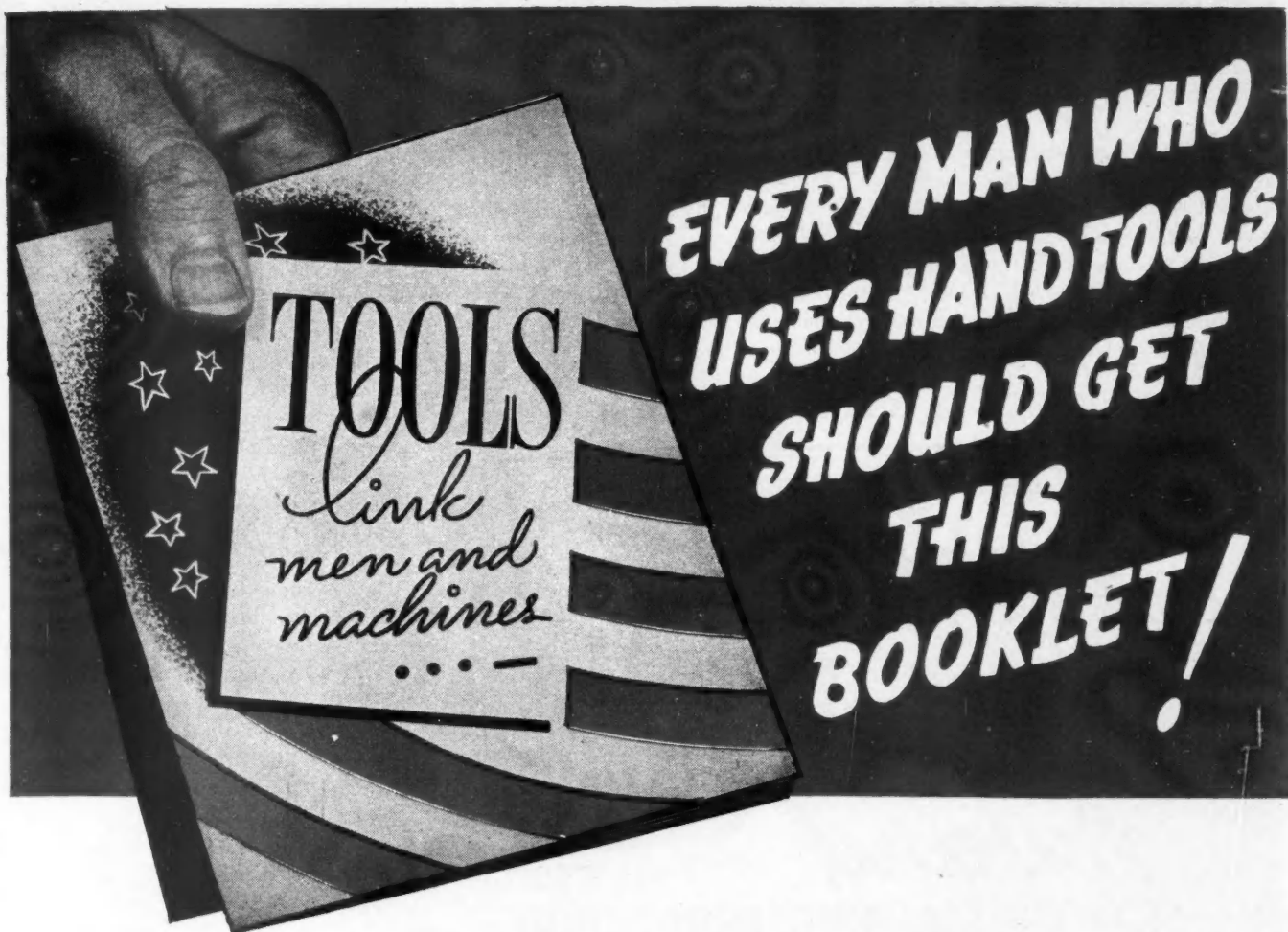
As a result of this inspection, Handy Governors are accurately checked for performance under conditions which are identical to those under which they will have to operate. Not only is the no-load speed set on this Flow Bench, but operation is checked throughout the governing range. In addition, the surge, cheat and operation of the distributor vacuum valve are checked.

This method of inspection assures the effective and accurate functioning of Handy Governors when they are put into service.

KING-SEELEY CORPORATION • Ann Arbor, Michigan

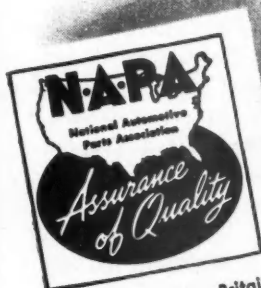
HANDY *Visible Action* GOVERNOR

World's Largest Manufacturers of Automotive Governors



You mechanics who are meeting the heavy demand and doing a grand job keeping America's vital wartime transportation rolling need this booklet. It is a practical guide on Tool care . . . and contains many a sensible tip to help you make your present Tools last for the duration.

New Britain Hand Tools have the quality and endurance these busy times demand . . . that dependable "Greater Strength — Better Fit" for which they are famous. If you've got New Britain Tools in your Kit, you are fortunate. But, we urge you to keep all your Tools ready and able for today's critical job. This booklet tells you how. A copy is ready for you now — just ask for it. Write to — The New Britain Machine Company, New Britain, Conn.



The complete New Britain Line for Automotive, Aircraft, General Maintenance & Production Jobbers. is sold by leading Master stocks are maintained in 38 NAPA Warehouses.

New Britain



THE ARMY-NAVY "E" PEN-NANT flies over the New Britain plant today, signaling outstanding performance in the production of machine tools, aircraft engine parts and projectiles.

GREATER STRENGTH · BETTER FIT

TOOLS

LAUNDRY IRONS OUT PARTS PROBLEM

(CONTINUED FROM PAGE 80)

exhaust, body and fenders, tires and accessory equipment. This complete inspection takes two men about eight hours to check and make any necessary minor adjustments. If the inspection shows that any major repairs are needed, the truck is put into the shop immediately and the necessary repairs made.

We adjust brakes at each 1,000 mile inspection, but we also make a brake adjustment whenever the driver of a vehicle reports that his brakes are not satisfactory.

If it is found necessary at the 1,000 mile inspection to reline the brakes, we install relined shoes from our stock room. A reline job lasts about 25,000 miles. We have made it a practice to install relined shoes whenever an inspection shows that the lining is worn down close to the rivets. Because of this close and fre-

quent inspection of brakes, very seldom do we find it necessary to turn down or renew brake drums because of scoring.

Wholehearted cooperation of the drivers is an important factor to us in reducing operating costs. We think that we have earned this cooperation by convincing our drivers that we never want to them to take out a truck that has brakes in an unsafe condition.

Lubrication is performed on a mileage basis, every truck in our fleet is lubricated every 1,000 miles. We have oil filters installed on all our trucks, and the filter bags are changed as soon as the oil shows dark on the dip stick. We average about 500-800 miles on a filter bag. The engine oil is never changed except when the engine is torn down for repairs. We have encountered no bearing troubles or undue wear on cylinder walls from dirty oil. Although we use plenty of filter bags, we know that this practice has saved us many dollars. Some of our trucks have traveled over 22,000 miles without an oil change, and the oil is just as clean and clear as the day it was put in the engine.

To help us get the maximum economy from our trucks we perform a complete engine tune-up every 1,000 miles using our engine analyzer. This tune-up includes cleaning and re-gapping of spark plugs, overhaul of distributor, check of condenser, coil and ignition timing. At this time we also check and set the governor to 35 miles per hour using a tachometer. A compression test is also taken, and if more than 10 lb. variation shows up between cylinders, a carbon and valve job is performed, plus new piston rings, if necessary. We use a neon light for setting the spark timing. However, we have found that it is necessary to retard the timing about 2 to 4 degrees from the factory setting to compensate for the lower octane fuel now available.

When an engine regularly begins to consume more than one quart of oil per 100 miles, then an engine overhaul is indicated. The overhaul consists of installing new piston rings, pins, timing chain, main and rod bearing inserts; if needed, a carbon and valve job and a complete tune-up. The transmission is also checked, and any necessary repairs are made.

(TURN TO PAGE 84, PLEASE)

ARMY E NAVY

Award

'ANTHONY
HYDRAULIC

HOISTS AND BODIES

**"FOR OUTSTANDING PRODUCTION
OF WAR MATERIALS"**

DEPARTMENT OF THE NAVY
OFFICE OF THE UNDER SECRETARY
WASHINGTON

December 24, 1942

Mr. William C. Anthony, President
Anthony Company, Incorporated
Streator, Illinois

Dear Mr. Anthony:

This is to inform you and all employees of the Anthony Company, Incorporated, that the Army and Navy are conferring upon your plant the Army-Navy "E" Award for outstanding production of war materials.

This award consists of a flag to be flown above your plant and a lapel pin, significant of major contribution to victory, for every individual in your plant.

The high accomplishment of you men and women of the Anthony Company, Incorporated, is inspiring. Your record will be difficult to surpass, yet the Army and Navy have every confidence that it was made only to be broken.

Sincerely yours,
James Forrestal

NOW IN OUR 25th ANNIVERSARY YEAR

ANTHONY COMPANY, INC.
STREATOR * * * ILLINOIS

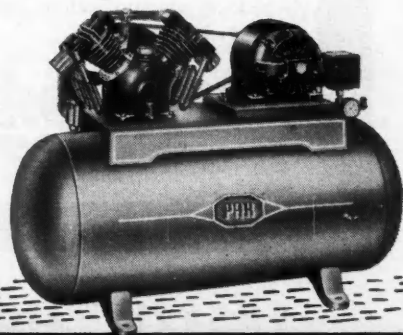


Emphasis on Education

Today . . . in civilian life and in the services . . . the emphasis is on specialized industrial training and education. As a result, in tomorrow's peace, more people than ever will be equipped to judge keenly the merits of mechanical products. This means the future market will quickly recognize equipment of superior performance . . . products that have kept pace with new developments. PAR Air Compressors have always met the requirements of the most exacting buyers . . . will continue to do so in the world of tomorrow where appreciation of outstanding craftsmanship will be keener than ever.

Manufacturers of PAR Air Compressors

PAR
DIVISION



LYNCH MANUFACTURING CORPORATION • DEFIANCE, OHIO, U. S. A.

LAUNDRY IRONS OUT PARTS PROBLEM

(CONTINUED FROM PAGE 82)

New transmission oil seals are always installed. The clutch is examined, both the driven plate and the pressure plate are checked and renewed if needed. All lighting and ignition wiring is checked, and renewed if in bad condition.

We average about 85,000 miles on our trucks before it is necessary to

rebore the engine. The block is sent out to be rebored, then we fit new pistons, rings, pins and bearings. The carburetor is overhauled and a complete engine tune-up is performed.

On some of our trucks which were equipped with regular 3-speed passenger-car-type transmissions we encountered frequent trouble such as gears breaking, etc. They did not seem to stand up under the many gear changes necessary in our retail delivery service. To overcome this trouble we went to a graveyard and

purchased a 4-speed truck transmission which would fit these trucks. The 4-speed transmission was overhauled and installed in one of these trucks in place of the standard 3-speed transmission. A hole was cut in the floor board and a new gear shift lever was made and installed. The steering post shift was done away with. These transmissions have given satisfactory service on the trucks on which they have been installed and no failure of any transmission gears have as yet been experienced.

We are watching our tires very carefully now and are trying in every way possible to get the very last mile out of them. Tire pressures are watched carefully and inflated whenever necessary to the maker's recommended pressures. Front-end alignment is checked every 1,000 miles, and we believe that we are stretching our tire life by this careful and frequent check of alignment.

We are firm believers in a 1,000 mile PM program, and know that in our case it has made it possible for us to maintain our fleet at maximum efficiency at the lowest possible cost of operation.

END

(Please resume your reading on P. 42)

THERE'S A GREMLIN IN MILEAGE RECORDING

(CONTINUED FROM PAGE 53)

vehicle, will also necessitate the changing of the dash odometer or hub-odometer gears, otherwise these instruments will not register actual mileage traveled by the vehicle.

In the case of vehicles equipped with dash odometers, tire and wheel sizes may be changed on any wheel of the vehicle with the exception of the rear drive wheels without affecting the accuracy of the mileage recorded.

On vehicles equipped with hub-odometers, which are generally attached to the hub of one of the front wheels, tire and wheel sizes may be changed on any wheel of the vehicle except the front wheels without affecting the accuracy of the mileage recorded.

END

(Please resume your reading on P. 54)



**"ON SCHEDULE
and within the Law"**

WITH lower highway speeds in force, keeping war and other vital shipments moving *on schedule* is more important than ever.

By installing "ZENITH GOV-U-RETOR" Speed Controls now, your trucks will roll along within the 35-mile speed law ordered to save tires and fuel . . . and still maintain schedules. "ZENITH GOV-U-RETOR" Speed Controls provide accurate speed control, as well as offering the added feature of fuel-saving carburetion. Investigate these two-in-one units that help your trucks operate safely, economically, and within the law.



ZENITH
GOV-U-RETOR

The "ZENITH GOV-U-RETOR" Speed Control is a member of "The Invisible Crew" . . . precision equipment which 25 Bendix plants from coast to coast are speeding to world battlefronts.

THE INVISIBLE CREW
Precision
Equipment by
Bendix
AVIATION CORPORATION

ZENITH CARBURETOR DIVISION • Detroit, Michigan

"More Than 80,000 Miles— —before reborning—Using FRAMS!"

Say Leading Fleet Owners



Frams Cut Engine Wear-- Shop Records Prove It!

When we claim that Frams save motors, parts, oil, overhauls, dollars, and delays—plenty of fleet owners and mechanics know we're talking turkey! They've *proved* by actual trial that everything we say about Frams is true. "Wear found to be 3 and 4 times more on engines *not* equipped with Frams," writes a Los Angeles operator. "Frams cut engine wear in half," a Kansas City bus operator reports. Fram has received many letters like these—all based on actual shop records. They show how you can solve your wartime "preventive maintenance" problem—by taking one of these two steps:

If your fleet Has filters

—get genuine Fram Replacement Cartridges to step up performance. Fram Cartridges are chemically-treated. They do what no non-chemical filter can do: not only filter out dust, grit, carbon and sludge, but also impede formation of acids and other harmful corrosives that eat away motor parts. Chemically-treated Fram Cartridges are now made for most makes and types of filters. The extra, chemical protection means extra savings on motors and parts.

If your fleet Has No filters

—install Frams. Your jobber can supply big, heavy-duty Frams made to order for the engines you have and the wartime job they're doing. Here's Fram's Guarantee: Install Fram and operate for 90 days. Then, if you're not convinced that Frams save their cost many times over, we'll gladly refund your money. Get the complete Fram story from your jobber. Fram Corporation, Providence, R. I. Canadian Distributor: J. C. Adams Co., Ltd., Toronto, Ont.



HOW'S YOUR OIL FILTER?

The Dip-Stick Tells The Story

COMMERCIAL VEHICLE DEVELOPMENT, '21-'42

(CONTINUED FROM PAGE 45)

by the truck operators' desire for operating economy than for lower first cost. The modern counterpart of the 1921 model truck is a swifter, surer, more capable . . . and a *safer* vehicle . . . and at the same time represents a 60 per cent saving in first cost—a saving projected in lower transportation cost—and there-

fore the ultimate cost—of practically everything we buy.

In fact, the price of one truck in 1919 buys two and a half trucks of equal capacity today.

In making axles and transmissions today, there has been a large increase in the number of axle parts and more costly materials are used, but axles and transmissions cost about 1/3 to 1/2 of what they did 20 years ago on an equal capacity basis.

Designing a truck engine is a much more complex and expensive process

today than it was 20 years ago, yet the cost of a truck engine today is about one-fifth of what it was 20 years ago, on the basis of horsepower output, and life has been tripled.

During the past 20 years specific fuel consumption of truck engines has been reduced about 20 per cent. This is in large part due to a 50 per cent increase in engine compression ratios—made possible by cooperative fuel and engine research and development.

Oil economy has been tremendously improved. Oil consumption is approximately 1/5 of what it was 20 years ago in the average truck, despite the higher truck and engine speeds.

Technological Development as Affected by Safety, Durability, Performance, etc.

Twenty years ago for the slow speed truck a few thousand miles was considered a good annual performance. Today, in a single year, this has grown to 100,000 or more miles. A life mileage of 400,000 is very ordinary, and a great many have passed the million-mile mark.

The story of how this has been achieved is not a simple one. It involves an enormous amount of engineering development, pioneering developments in metallurgy, and improved manufacturing methods. The fact that road-side failures and "pull-ins" are few and far between cannot be attributed to any one or even a dozen specific developments.

Gear steels of greater strength and longer fatigue life, alloy irons less subject to wear and abrasions are discussed. Valves and crankshafts now last almost indefinitely as a result of metallurgical development; water pumps which once had to be repacked and then taken up every few thousand miles now require no attention.

The introduction of the pneumatic tire reducing shock loads 25 to 67 per cent was one of the outstanding contributions toward increasing durability and lessening service troubles.

Compared with 20 years ago, the average truck today can carry twice the load at twice the average road speed (an increase of 400 per cent in ton miles). Trucks are now designed for a road speed of 50 miles per hour compared with the 15 to 20 mile figure of two decades ago.

(TURN TO PAGE 88, PLEASE)

PRICELESS

Anything is beyond price if it cannot be replaced or duplicated—and that goes for a jewel, a painting . . . or a truck.

Right now it's trucks that concern us most—every one a vital asset to you as an operator, and to all as a nation. What could we do without them? That's why the burden has been placed on your shoulders . . . "keep them up" . . . "make them last" . . . "take all steps necessary to save them."

Most operators started their conservation program by installing reliable, proven governors. No, governors cannot make new trucks out of old ones, but they will do more to prolong the life of your equipment and tires than anything else you can do . . . and save, in dollars and cents, a lot more than what they cost.

HOOF PRODUCTS COMPANY
CHICAGO, ILLINOIS

Save Your Vehicles for Your Country

HOOF FULL POWER GOVERNORS



AMERICA NEEDS YOUR IDLE TOOLS!

Every mechanic in America should know these facts . . . and act on them! The shortage of wrenches and hand tools grows more critical. Our armed forces come first . . . that's a matter of life and death . . . of quicker Victory or final defeat. But it is also desperately important that 25,000,000 civilian trucks, buses, tractors, and cars be kept rolling. That requires more tools than the Tool Industry can immediately furnish . . . And that's where you come in!

AMERICA WINS ON WHEELS . . . KEEP EVERY TOOL WORKING

Idle Tools!

Let's Face the Facts!
With an increasing need for tools in the service shops of the armed forces, every tool that is not in active work is helping our loss!

Tools in military shops are needed by many jobs and are in constant demand. For many mechanics are working in the service shops and are not able to get their tools back. It is immediately important that these tools be returned to the service shops as soon as they are available. And you can help by doing this. If the tools that are not in active work are returned to the service shops, they will be available for use by the mechanics who need them.

Here's What We All Can Do About It!
Snap-on's Tool Enlistment Plan is available to all. The way you can do the job is to return your tools to the service shops as soon as they are available. And you can help by doing this. If the tools that are not in active work are returned to the service shops, they will be available for use by the mechanics who need them.

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SNAP-ON TOOLS CORPORATION, TOOL ENLISTMENT DIVISION
8026-C 28th Avenue, Kenosha, Wisconsin

MARK THIS COUPON FOR FULL DETAILS

TOOL ENLISTMENT DIVISION, SNAP-ON TOOLS CORP.

Send me full details of the Snap-on Tool Enlistment Plan.

(Check one of these)

☐ I have tools, and am ready to enlist them for Victory, at fair cash prices.

☐ I need tools, and will consider purchasing Victory tools of good quality and condition, at fair prices.

Name _____

Address _____

"OK, Snap-on, America gets MY idle tools!"

"I know how tough the going is for the boys back in the shop. A lot more work . . . fewer men to do it . . . longer hours. New tools? . . . well, try to get 'em! Uncle Sam's needs come first . . . and nobody wants to beef about that. Yet in spite of everything the boys *have got to keep those babies rolling!*"

"So OK, Snap-on, count me in. Your offer to appraise my tools at a fair price for a cash deal sounds alright to me. I'm sending in that coupon *now.*"

* * * *

LET'S ALL pitch in and lick this shortage that increasingly handicaps the service industry. The one quick, sure way to do it is to *get every idle tool back to work!*

You men who are going into service . . . and you who have gone into some war industry where your tools are

not needed . . . get those tools back into the fight . . . *America needs them!*

If you cannot yourself contact a mechanic seeking tools, we'll try our utmost to do the job for you. We organized our Tool Enlistment Division for just that purpose. Talk it over with your Snap-on man — or call at the nearest Snap-on branch office — or write direct to the Tool Enlistment Division. We'll arrange to make a fair cash appraisal of your tools, *and to put them back to work!* Fill in, and mail the coupon today!

TOOL ENLISTMENT DIVISION
SNAP-ON TOOLS CORPORATION
8026-C 28th Avenue Kenosha, Wisconsin

Snap-on Tool Enlistment Plan

HELP AMERICA WIN ON WHEELS

Tool Enlistment Division, SNAP-ON TOOLS CORPORATION
8026-C 28th Avenue, Kenosha, Wisconsin

Send me full details of the Snap-on Tool Enlistment Plan.

(Check one of these)

☐ I have tools, and am ready to enlist them for Victory, at fair cash prices.

☐ I need tools, and will consider purchasing Victory tools of good quality and condition, at fair prices.

Name _____

Address _____

COMMERCIAL VEHICLE DEVELOPMENT, '21-'42

(CONTINUED FROM PAGE 86)

The increase in engine horsepower has been a vital factor in improving truck performance. Comparable trucks today have three to five times the power they did 20 years ago.

The adoption of the six-cylinder engine resulted in doubling the horsepower previously obtained from four cylinders. The increase in com-

pression ratio added another 50 per cent.

Because of research work in developing light weight materials and alloy steel, the increased horsepower has not been accompanied by any material increase in engine weight.

Since the loads that trucks were permitted to haul remained more or less constant due to state restrictions, practically all of the increase in engine output was made available for better performance. Trucks accelerate 50 per cent faster today than they

did 20 years ago. Maximum torque of engines per cubic inch displacement has been increased 30 to 40 per cent. At the same time, the maximum torque available in an engine is now produced at a higher engine speed; thus giving trucks their maximum lugging ability at higher road speeds.

Low gear ratios in transmissions have a greater reduction than they formerly did while the number of transmission speeds has been increased.

Closely related to the question of performance is the ease with which a truck can be handled on or off the highway. Were it not for the vast improvement in steering, braking, and gear shifting which have been accomplished over the past 20 years, present-day performance of motor trucks would be out of the question.

Among the various contributions to handling ease of modern motor trucks has been the vastly greater ease of steering through the reduction of friction and the development of more efficient designs and improved steering geometry. Braking effort has been greatly reduced as a result of the development of four-wheel brakes, hydraulically or air operated, developments in brake boosters, the use of some servo-action in brakes, etc. The greater ease of shifting in transmissions is largely due to the development of constant mesh gears with synchronizing clutches, etc. Two-speed axles also facilitate shifting, particularly the recent types, in which the shift is made pre-selective.

Any explanation of what has been done in the present-day truck to increase driver comfort must necessarily start with the advent of the pneumatic tire and continue through the use of the balloon tire. But even greater rider comfort was assured as time went on through such developments as softer springs resulting from new spring steels, the adoption of shock absorbers, and utilizing helper springs permitting the use of softer main spring for light-load operation.

On the safety side of the picture, the modern motor truck has established a remarkable record. In the last seven years accidents involving trucks have been cut almost 25 per cent on a mileage basis.

Contributing to greater safety
(TURN TO PAGE 90, PLEASE)



A 12 ounce Sentry

It's the VISCO-METER* we're talking about... 12 ounces of mechanical precision doing wide-awake sentry duty on gasoline and Diesel engines in the services and on the home front.

In an engine—be it marine, motor transport or supplying power for landing field lights—efficiency and service life are measured in terms of constant, correct lubrication. Anything less than making sure is an invitation to trouble.

And VISCO-METER* is the one dependable means of *making sure*. Via its gauge, the VISCO-METER* is visual entry to the crankcase, continuously telling the operator the lubricating value (viscosity) of the oil while the engine is in operation.

Uncle Sam is thorough. Long before the war, VISCO-METER* was in service on government truck engines... and proving its worth by warning of impending lubrication failure as well as effecting economies in oil consumption. That's why VISCO-METER* production has been "upped" to a new high and every unit enlisted for sentry duty.

It won't be long before VISCO-METER* production will be available for peacetime use on all types of internal combustion engines... inexpensive and necessary to make an engine complete. Service records are more convincing than words. A VISCO-METER* engineer will help you get ready for tomorrow.

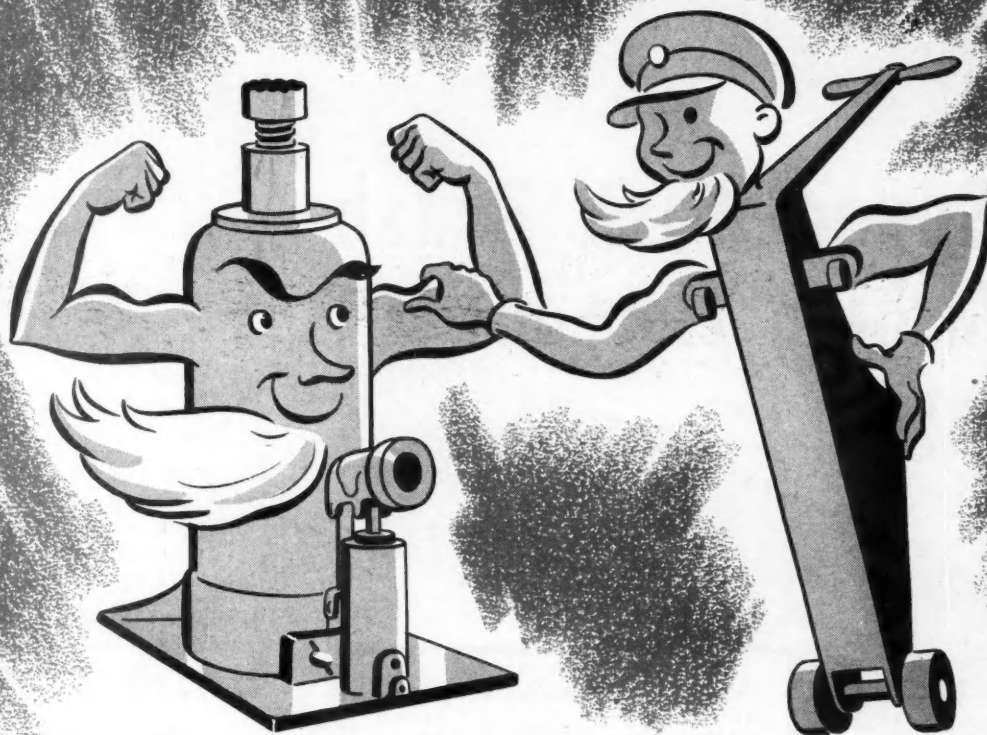
VISCO-METER

CORPORATION

GROTE ST., BUFFALO, N. Y.

*Fully covered by U. S. and Foreign Patents

HOW YOUR JACKS CAN LIVE TO A RIPE OLD AGE



● Don't overload your jack. Don't use choppy strokes. Be sure the jack is properly placed and the load centered on the cap. Don't raise the load higher than necessary. Keep your jacks clean, painted and well lubricated—and above all, **USE PROPER OIL.**

More hydraulic jacks are ruined through filling them with brake fluid, dirty crankcase drainings and improper types of oil, than from any other cause.

Realizing that now more than ever before, hydraulic jacks need the finest of care, Walker has developed an entirely new oil alloy especially for use in hydraulic jacks of all kinds—Walker Hydroyl-50. This scientifically compounded hydraulic jack fluid contains *special costly ingredients that prevent interior rusting and preserve cup leathers.*

To prolong the life of your hydraulic jacks . . . to pep up jack performance . . . **DRAIN, FLUSH AND REFILL THEM WITH WALKER HYDROYL-50.** It costs no more!

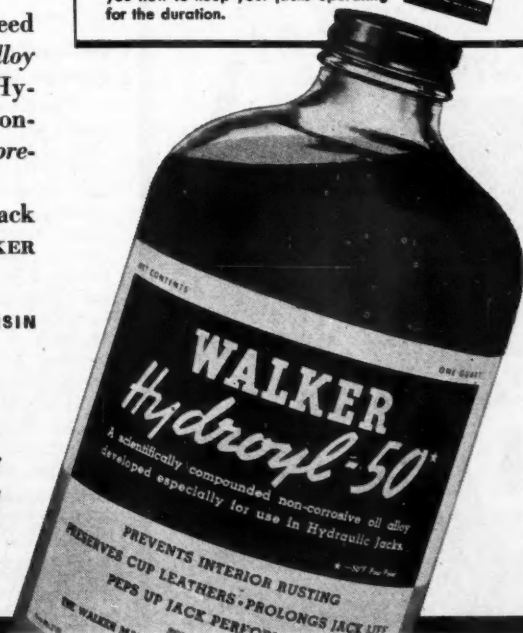
WALKER MANUFACTURING COMPANY OF WISCONSIN, RACINE, WISCONSIN
Also Makers of Walker Exhaust Silencers

WALKER

*Leads
in Jacks*

Free . . . 16-Page Manual on Care and Maintenance of Jacks

Ask your Walker jobber salesman for a free copy of "Care for your Jack for your Country"—a complete jack maintenance manual prepared by the Walker Service Department that tells you how to keep your jacks operating for the duration.



COMMERCIAL VEHICLE DEVELOPMENT, '21-'42

(CONTINUED FROM PAGE 88)

were: Improved brake lining and brake drums; the introduction of hydraulic and air brakes with resultant greater equalization of braking effort; the adoption of four-wheel brakes; development of full power brakes; reduction in pedal travel for quicker brake application.

Technological Development as Affected by Legal Limitations

The limitations on truck weights, highly contradictory and frequently arbitrary, have perhaps had the greatest effect on truck design. Greater uniformity in state limitation would mean much in the way of avoiding economic waste, particularly in interstate operations and in a sizeable reduction in first cost of vehicles even for intrastate transportation.

Assuming that the present trend

toward such uniformity in state size and weight limitations were extended, the problem of designing and producing trucks would be greatly simplified. It would permit greater standardization of design of many individual parts that go to make up a truck, particularly in the case of structural and load-carrying members such as frames, axles and wheels. It would also remove from the operator's mind the fear of obsolescence due to constantly changing and varying legal requirements.

The ideal regulation would be that which takes care of public safety factors while at the same time encouraging genuine improvement in the performance of the vehicle. Under such conditions regulation would act, not to discourage as it does today, but rather as an incentive to better engineering.

It has been conclusively demonstrated that the truck engineer always can design to meet a specific set of circumstances. But the greater the standardization, the simpler and the more effectively he can meet the requirements, the greater will be the economy of operations for the truck operator, and the greater will be the reduction in first cost of the vehicles.

Truck-Trailer Development

The truck-trailer, barely 25 years old, had a humble beginning. At first it was no more than a two-wheel wagon hitched behind an automobile like a cart drawn by a horse. It had no brakes. Its body was of wood on an iron frame and it traveled on solid tires. About 1919 many business organizations began to use them.

The trailer "hitch" gave way to the sturdier "fifth wheel" method of connecting trailer to the tractor unit. The automatic fifth wheel appeared just prior to 1921.

Power brakes, actuated by air pressure, appeared in 1924 and pneumatic tires in 1925 along with better spring suspensions. This combination of pneumatic tires and improved springing, followed by greatly reduced unsprung weight due to the replacement of solid bar axles by the lighter but stronger I-beam and tubular types, provided an easy-riding vehicle with greatly reduced shock to load and highway.

The development and use of
(TURN TO PAGE 92, PLEASE)

This Speed Wash Brush Cuts Washing Time in Half

DOES A BETTER JOB AND SAVES THE FINISH

Durable protective bumper all around the edge.



Speed-Wash fountain brushes are used in scores of commercial fields. Users include: Southwestern Greyhound Lines, Kroger Grocery and Baking Co., Shell Oil Co., Coca Cola Co., United Parcel Service.

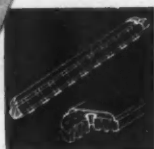


Tufts are hand drawn with rust proof wire.

Connects with any standard size hose coupling.



Handle is light weight electric welded steel tube.



Eight evenly spaced jets provide a steady stream of clean water.



Brush is easily detachable from handle, economical to renew.

ADDING the Speed-Wash to your washing equipment is like hiring another man — **WITHOUT PAY.**

It's an actual fact, proved in hundreds of cases, that the Speed-Wash cuts wash job time between 40 and 60 per cent. Here's the reason: One man does the complete work of soaking, scrubbing and rinsing in ONE operation — without changing tools and without interruption. The ease with which these three jobs are done together allows the Speed-Wash to be a man-sized tool, cleaning a 12" path with each stroke.

Unique Construction For Faster, Better Work and Longer Life

The Speed-Wash fountain brush is made with first quality horsehair tufts that are hand drawn into the block with rust proof wire. They cannot come out or come loose. Eight evenly spaced jets provide a steady stream of clean, fresh water. Tufts are always clean and free from grit. Sturdy bumper protects against marring finish. Brush is detachable from the handle and renewable at low cost. Handle is an electric-welded steel tube which weighs about the same as aluminum. Handle socket is at one end and standard hose connection at the other.

\$9.45

Post Paid if cash accompanies order.

Order today. Priority rating of A-10 or better will insure prompt delivery. Send check or money order to...

MILWAUKEE DUSTLESS BRUSH CO.
526 N. 22ND STREET MILWAUKEE, WIS.

CONSERVE

the life of cars and trucks



Keep 'em rolling safely. Reline with Wagner **CoMaX** Brake Lining

OUR Government has requested that all fleet operators do their utmost to make all of their vehicles last as long as possible. This means that all cars, trucks, tractors, and trailers must be used for ESSENTIAL transportation only. It also means that fleet operators must give their vehicles constant care and proper upkeep.

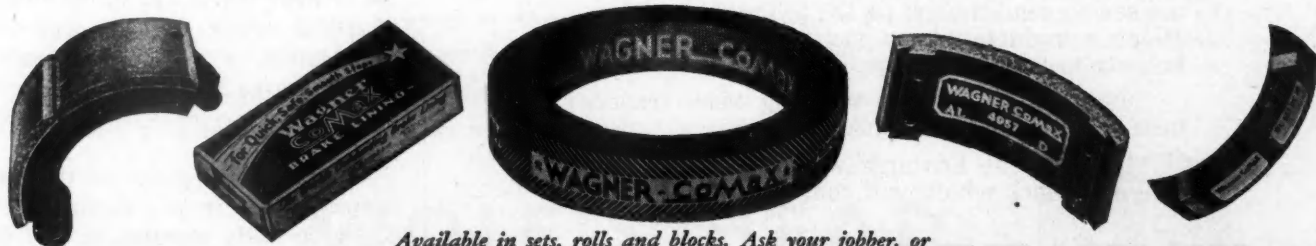
Good brakes are one of the most important considerations in car and truck conservation. Fleet operators know that when a brake relining job is required it pays to insist on a quality brake lining because *quality* is essential to long-life and satisfactory performance, and they do not have to be reminded that the very best in brake lining means Wagner CoMaX. Here are a few reasons why:

CoMaX is the finest in molded brake lining. It is unsurpassed for quick, safe, smooth stops—so necessary for the safe transportation of materials to fill war contracts.

CoMaX is long-lived. This means extra miles before lining replacement is necessary—and less frequent replacements mean more brake lining immediately available for war needs.

Other CoMaX features include reinforced backing—permitting deep seating of rivets and extending the period of safe usefulness; it is non-compressible, uniform in texture, easy on drums, and age-proof.

Wagner CoMaX meets every demand for a dependable and high-quality brake lining.



Available in sets, rolls and blocks. Ask your jobber, or write us for catalog and prices covering the complete line.

B43-4C

AUTOMOTIVE
PARTS DIVISION

Wagner Electric Corporation
ESTABLISHED 1891
ELECTRICAL AND AUTOMOTIVE PRODUCTS

SAINT LOUIS, MO.
U. S. A.

COMMERCIAL VEHICLE DEVELOPMENT, '21-'42

(CONTINUED FROM PAGE 90)

pressed steel, which did so much to lighten as well as strengthen passenger automobiles, gave similar advantages to truck-trailers. This trend, starting about 1926, has continued up to the present, each improvement in materials and in design resulting in a unit which offered a reduced ratio

of total weight to payload, while at the same time providing added strength and safety.

The past five years have witnessed the development of the frameless trailer, with fifth wheel and axle suspended directly from the body. This improved design has permitted the carrying capacity to be increased as much as a ton or more without any addition of gross vehicle weight.

Full advantage has also been taken of the greater availability of lightweight materials. Aluminum, and

particularly stainless steel, have been highly successfully employed.

Although trailer manufacturers have been unable to adopt mass production methods to their fullest extent they have employed them to the greatest possible degree and consequently have been able to cut costs and prices.

Looking to the future, from an engineering standpoint, the end of the war will again release even better materials than previously with the result that lighter and stronger truck-trailers will be traveling our highways.

More liberal laws tuned to present vehicle and highway construction must undoubtedly in time replace those which at present shackle highway transportation. Developments made possible by relief from present legislative restrictions would be even more rapid and important than those due to technical improvements.

Bus Development

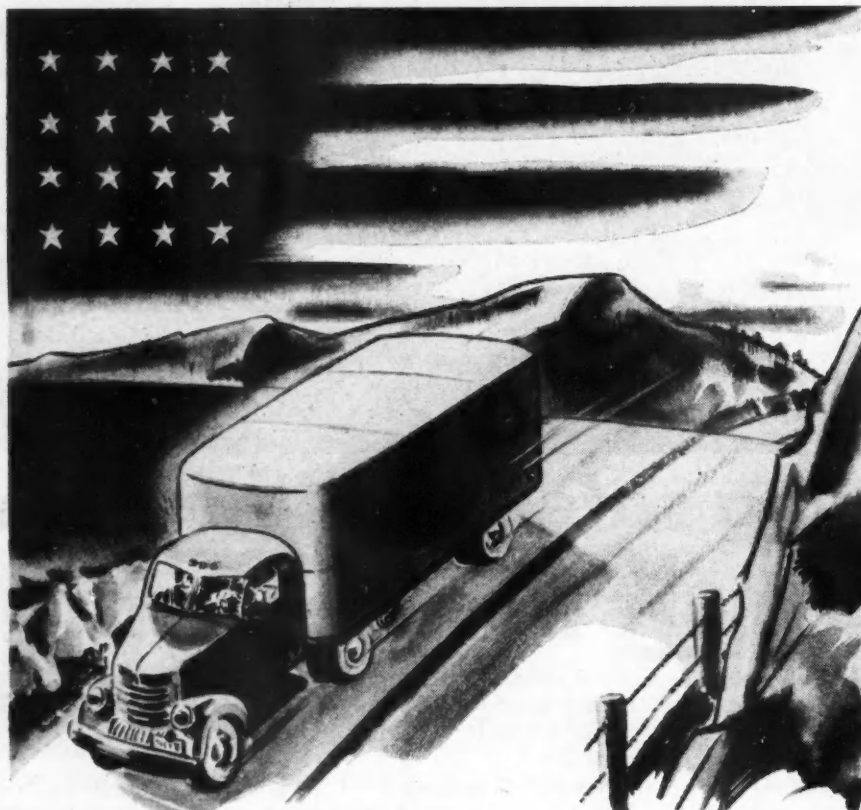
Twenty years ago only 14 out of 820 cities with a population of over 10,000 had an all-bus local transportation service. Only four such cities were served with an all-bus intercity service. Today the bus industry operates 57,580 buses.

In 1923, the first double deck buses to be equipped with pneumatic tires were built and delivered to the Los Angeles Railway Company, and at that time they entered into a contract with the rubber company to supply tires for it at the rate of 3½¢. per mile, whereas in 1937 they were paying six mills per mile for pneumatic tires on these same vehicles.

Stepped up to a point utterly unconceivable a few years ago is the life expectancy of such units as the engine, transmission, axle, drive line and universals. This, too, was the result of weight reduction thru the use of light weight but strong alloys of special metals. In some cases the combination of these light metals, plus improved methods of construction, reduced weight as much as 4000 pounds per bus.

The rated horsepower of the bus engine jumped from a maximum of 45 in the early twenties, to 100 in 1932, to 175 in 1942. Today it uses less gas and oil per mile despite the increase in average passenger carrying capacity.

(TURN TO PAGE 94, PLEASE)



SEMI-TRAILERS ALSO SERVE

These days the goods *must* go through.

We've a war to win and need the materials to win it with. The truckers are doing a job to the best of their ability. Highways and by-ways are seeing semi-trailers on the job night and day. Helping production keep pace with demands and helping to keep the home fires burning.

Many of these hard-working semi-trailers bear the Edwards nameplate.

And here at Edwards we are doing a wide range of work which will contribute to Victory.

EDWARDS *Semi-Trailers*

EDWARDS IRON WORKS, INC., SOUTH BEND, IND.

DRUMS

around the world



WOLF'S HEAD OIL has been shipped all around the world in huge quantities for use in United Nations' planes.

Ever since World War I, Wolf's Head has had the approval of aviation maintenance experts, and of the men who design and manufacture airplane engines. Pan American, for instance, has used Wolf's Head for over 14 years in the *Clippers*, and Wolf's Head is used by leading airplane engine manufacturers in their own plants during the critical testing and breaking-in runs.

The automotive engines of America's vital transportation system at home need the very *best* protection you

can provide. Only the *best* oil is good enough! Follow long-range aviation experience. Use Wolf's Head 100% Pennsylvania Oil exclusively—it's the *best* engine protection money can buy! Wolf's Head Oil Refining Co., Oil City, Pa.—New York, N. Y.

LABORATORY CONTROL SERVICE

Wolf's Head engineers analyze oil after its use in your units, and make specific recommendations for reducing operating costs and prolonging engine life in your fleet. This valuable service costs you nothing—write and ask how to get it.

WOLF'S HEAD MOTOR OIL AND LUBES

100% PENNSYLVANIA  P.C.C.O.A. Permit No. 6



COMMERCIAL VEHICLE DEVELOPMENT, '21-'42

(CONTINUED FROM PAGE 92)

Significance of These Past and Current Developments on the Future

It is unlikely that the first commercial vehicles to be produced immediately after the war will differ radically in general design from those in production last year. The immediate need in all probability will

be too great to allow quick drastic redesign.

Yet, just as World War I was the cradle in which the motor truck was nurtured, so World War II can easily be responsible for evolution of entirely new departures in vehicle design.

It appears inevitable that a trend towards higher horsepower in truck engines should set in. The war has brought in large scale production of 100-octane gasoline for airplanes. One would expect increase in engine

compression ratios to take advantage of the higher anti-knock qualities of the new fuels.

It is anticipated in the industry that there will be a continuing demand for more and more automatic and semi-automatic operation of transmissions in heavier trucks and buses. It is the further view of many engineering minds that there will be a marked increase in the output of trucks with front as well as rear driving axles for off-the-highway work in mining, forestry, and construction projects.

Experience being gained in the current conflict will lead the way for reducing net weights of the vehicles so as to increase the payload to be carried and thereby decrease the cost of the transportation.

Thousands of ideas are brought to the producers of the vehicles in the shape of customer demands. Thousands more are born out of competitive thinking of producers who anticipate future demands and strive to offer users a vehicle which will perform hitherto impossible services, or perform present services with hitherto unattainable economy and convenience.

If this force is set free and encouraged in the post-war period, we can assert without hesitation that commercial vehicles will go through all of the engineering mutations required to make them still more efficient, still more economical, safer and convenient, carriers of increasingly diversified loads. And the rate of that progress can become extremely rapid.

It is of immense importance, not just to truck producers and truck users, or to the millions dependent upon truck transport for a livelihood, but to the country as a whole, that the future pattern of regulatory law shall be based *exclusively* upon factors of public safety and road safety, and *not* upon any theory of handicapping one form of transportation, or one group of transporters or shippers for the protection and benefit of another.

We feel this so strongly that we hope to see new, competing forms of transportation allowed to develop without artificial handicaps.

END

(Please resume your reading on P. 46)



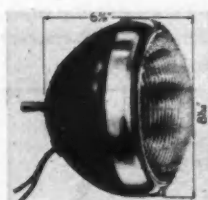
Turn extra economies your way with...

ARROW

TURN SIGNALS

Baked enamel on heavy gauge steel . . . Plated reflectors . . . Weather-proof gaskets . . . Non breakable lenses . . . Extra heavy visors—These are some of the outstanding features that make ARROW Turn Signals tough and practical. There is a style

and type of mounting for every purpose. Commercial operators everywhere know and prefer ARROW Products. You, too, will find that sturdy ARROW construction affords real economies. See your jobber salesman or write direct for information to Dept. 174.



SEALED
BEAM
HEAD
LAMPS



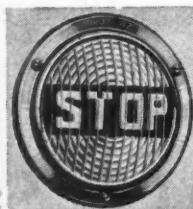
OIL & ELECTRIC
FLARES



MARKER LAMPS



CLEARANCE LAMPS

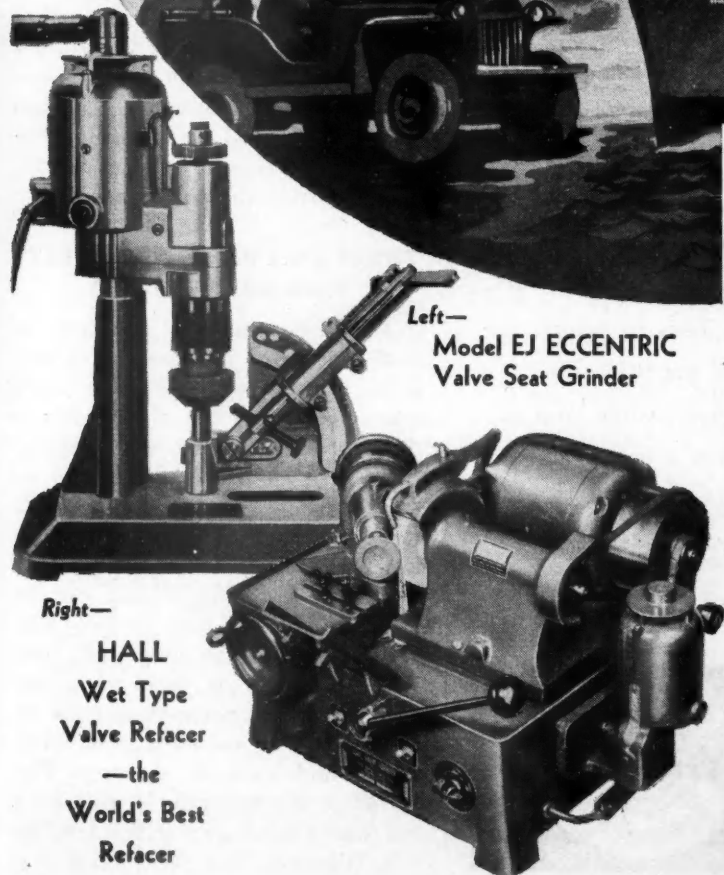


STOP
LIGHTS

ARROW SAFETY DEVICE CO., Inc.
MEDFORD, N. J.



THEY'RE ALL SERVICED WITH HALL



Left—
Model EJ ECCENTRIC
Valve Seat Grinder

Right—
HALL
Wet Type
Valve Refacer
—the
World's Best
Refacer

In every field of transportation, in peace or war, you'll find HALL Wet Type Valve Refacers and ECCENTRIC Valve Seat Grinders being used to maintain original factory standards of precision, finish and performance . . . In production, too, you'll find HALL Grinders adopted by leading engine manufacturers . . . If HALL is the preferred equipment for production, can anything else be better for maintenance? If you are one of the thousands who already own HALL Equipment, remember that both service parts and factory reconditioning are immediately available . . . Ask your Jobber or write the factory for complete information.

THE HALL MANUFACTURING COMPANY
TOLEDO, OHIO. U. S. A.

HALL

REGULATOR SERVICE SIMPLIFIED

(CONTINUED FROM PAGE 51)

a convenient ground. (Refer to Fig. 4.) Start the engine and run generator at not over 1500 r.p.m. and note voltage at which regulator operates. If incorrect, first adjust point opening. Then adjust the voltage setting by loosening the lock screw and turning the eccentric screw to increase or decrease the tension

of the armature spring. (Refer to Fig. 1.) Increasing the tension increases the voltage regulator setting and decreasing the tension decreases the setting. The spring tension should always be reduced to reduce the voltage to below the specified value and then increased to bring the voltage setting up to the proper value. Tighten lock screw securely after completing adjustments. Check setting by slowing the generator until the cut-out relay points open and then increase the generator speed

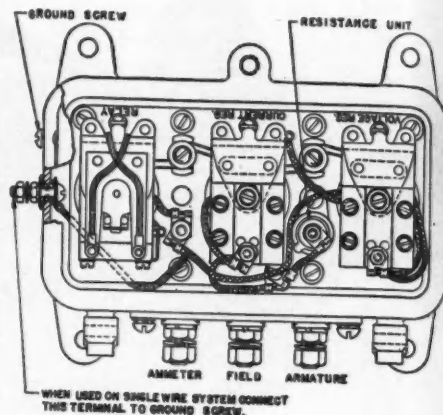


Fig. 7. Current and Voltage Regulator



You, too, share this Award

The men and women of the Weaver Manufacturing Company are proud of the new flag that flies over our plant. But we know this signal honor can come only through unselfish cooperation and sacrifice, and not the least of these are the sacrifices made by our automotive customers. In view of the requirements of our armed forces, which naturally come first, we have been devoting a great majority of our production facilities to equipment for the military. Consequently it has been impossible for us to meet all of the crucial requirements of our civilian customers. For that reason we feel that you, too, share a portion of the Army-Navy Production "E" awarded to our plant on December 26th, 1942 for an "outstanding contribution to victory".

WEAVER MANUFACTURING COMPANY, Springfield, Ill.

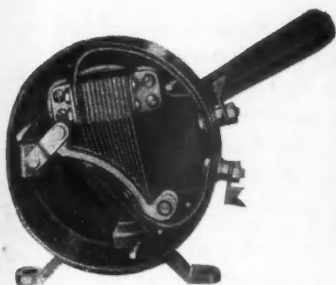


to previous value. Note: Voltage regulator must be at operating temperature and in operating position (i.e., horizontal or vertical) when setting is made. Caution: Do not under any conditions set above the high limit given in the specifications. **POINT OPENING**—Hold armature down against core and adjust contact point opening by adjusting upper contact screw. Tighten lock nut securely after adjusting point opening. Note: When checking points for the correct point opening do not move the upper contact from its natural position. The spring holding the upper contact should rise slightly above the fibre insulator (Refer to Fig 1) when the points are together and at rest to insure a wiping action on the points when they are in operation. If contact points are pitted or burned, clean with a thin, fine-cut contact file before adjusting the point opening.

THREE UNIT REGULATOR TESTS AND ADJUSTMENTS

This type regulator is used on both one wire and two wire systems. The regulators for both types of systems are similar except that the units for two wire installations have an insulated terminal on the side of the regulator to provide for a return circuit to the generator. Refer to Fig. 5, 6 and 7. Fig. 7 illustrates a regulator that can be used on either a one or two wire system. When an insulated (two wire) regulator is used on a one wire system, a connection must be made from the insulated terminal to the ground screw as shown in Fig. 7. When the regulator is used on a two wire (insulated) system, the in-

(TURN TO PAGE 98, PLEASE)



Controller, with cover removed... operated from driver's seat... a simple, effortless, instantly effective brake control.

Controller is mounted conveniently on under side of steering wheel.



CONTROLLED *Speed* ..AND *Power* OF BRAKING ACTION WITH **WARNER ELECTRIC BRAKES**

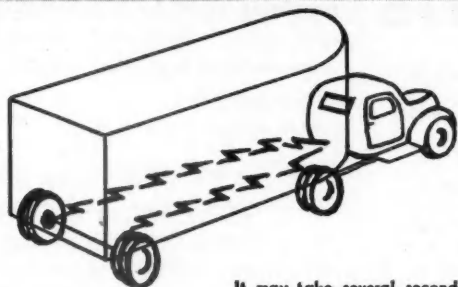
POSITIVE CONTROL

● Driver has complete control at all times. Any degree of braking power may be applied instantly, without effort. A rheostat in the controller regulates flow of current to brakes, thus governing the speed and power with which the trailer is stopped.

INSTANT BRAKE ACTION *No Time-Lag*

● With ideal road conditions, if your truck is traveling at a speed of 20 miles per hour, the distance required to stop is 30 feet. This distance is increased 29 feet each second of time-lag between the time the brake is applied and the time the vehicle stops. The further the rear wheels are from the driver's seat, the greater the time-lag, and the more distance needed for stopping.

With other type brakes there is serious time-lag but with WARNER Electric Brakes there is NO time-lag. The electric braking power, applied in any desired amount at the controller on steering wheel, travels instantly to the wheel brakes and, regardless of whether the rear wheels are 10 feet or 100 feet back from driver's seat, instant braking is certain... you can *depend* on a smooth 30-foot stop from a speed of 20 miles per hour.



It may take several seconds to actuate other type brakes... but electric power flows instantly, any distance, and assures instant braking.

At the present time the needs of our armed forces must be served first. However, if you are in the "essential" category, we can arrange to furnish Warner Electric Brakes.

Warner ELECTRIC BRAKES

**WARNER ELECTRIC BRAKE
BELLOIT**

**MANUFACTURING COMPANY
WISCONSIN, U. S. A.**

REGULATOR SERVICE SIMPLIFIED

(CONTINUED FROM PAGE 96)

sulated terminal is connected directly to the "A+" terminal of the generator as shown in Fig. 5. Fig. 6 illustrates wiring diagram used on a one wire system.

Cut-Out Relay

The cut-out relay of the three unit regulator is tested and adjusted in

exactly the same manner as previously described under two unit regulator. Refer to Fig. 3 for method of connecting meters to make check.

Voltage Regulator Unit

The voltage regulator unit of the three unit regulator is tested and adjusted in exactly the same manner as previously described under voltage regulator tests and adjustments for the two unit regulator. Refer to

Fig. 4 for method of connecting meters to make check.

(Refer to Figs. 2 and 3 and check the specifications for proper setting with the manufacture's manual or refer to the regulator setting specifications given in the April 1942 issue of CCJ.)

REGULATOR SETTING—To check the current regulator setting, it is necessary to keep the contact points closed in the voltage regulator to prevent this unit from operating. This may be conveniently done by bridging the voltage regulator contact points with a jumper lead as illustrated in Fig. 3. Connect an accurate reading ammeter in series at the regulator ammeter terminal and a voltmeter to the armature terminal and to a convenient ground as illustrated in Fig. 3. Start engine and increase speed until generator is running at a moderate speed. Note current regulator setting on test ammeter. If incorrect, first adjust point opening. Then adjust the current regulator setting by loosening the lock screw and turning the eccentric screw to increase or decrease the tension of the armature spring. Increasing the tension will increase the current setting and decreasing the tension will decrease the setting. Remove jumper lead from across the voltage regulator contact points when adjustments to current regulator have been completed. Note: Current regulator must be in operating position (i.e., horizontal or vertical) when setting is made. Caution: Do not under any condition set above rated output of generator.

POINT OPENING—Hold armature down against core and adjust contact point opening by adjusting upper contact screw. Tighten lock nut securely after adjusting point opening: Note: When checking points for the correct point opening do not move the upper contact from its natural position. The spring holding the upper contact should rise slightly above the fibre insulator when the points are together and at rest to insure a wiping action on the points when they are in operation. If contact points are pitted or burned, clean with a thin, fine-cut contact file before adjusting the point opening.

END

(Please resume your reading on P. 52)



KEEP 'EM ROLLING

with

BLOOD BROTHERS UNIVERSAL JOINTS

Whatever your requirements, if your problem is to transmit power at an angle, our field and factory experience of more than 30 years is at your command. Our Engineering Department will gladly submit quotations covering your requirements.

BLOOD BROTHERS MACHINE COMPANY
Division of Standard Steel Spring Company
ALLEGAN, MICHIGAN

Backed by
over 30 years'
Factory and Field
Experience



SPECIFY
Blood Brothers
UNIVERSAL JOINTS
FOR RELIABILITY AND
ENGINEERING EXCELLENCE

Marks the spot

• WHERE UNCLE SAM SAVES RUBBER!

• WHERE YOU CAN SAVE MILEAGE!

● See these small round holes in the shoulders of this Seiberling Truck and Bus tire? They're Heat-Vents, and they are the best-known method of expelling dangerous internal heat . . . the enemy responsible for more premature truck tire failures than all other factors put together. Because of these Heat-Vents, Seiberling Truck and Bus tires run cooler—and last longer!

Today, thousands of these self-cooling tires are giving more mileage per pound of rubber on Uncle Sam's military vehicles as well as on trucks and buses in essential service everywhere.

Take your next ration certificate to your nearby Seiberling Dealer. But if he is unable to supply you with these longer-wearing, Heat-Vented tires, remember please . . . the requirements

of our country's armed forces must come first.

Whether you get Heat-Vented Seiberlings now or after the war, these cooler-running tires will give you more trouble-free service at the lowest cost per mile you've ever known.

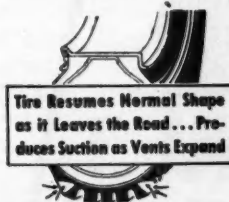
Your TIRES ARE VITAL! LET A QUALIFIED EXPERT HELP YOU CONSERVE THEM

A tire expert, qualified through years of training and experience, your nearby Seiberling Independent Dealer can help you "keep 'em rolling" with a practical rubber-saving service program that will add thousands of miles to the life of your present tires, whatever make they may be. See him soon. Remember, your tires are vital to your country's war effort—trust them only to the care of a real tire expert!

SEE HOW HEAT-VENTING SAVES RUBBER... HOW IT CAN SAVE MILEAGE FOR YOU



VENT CLOSES • EXPELS HEAT



VENT OPENS • INHALES COOL AIR

SEIBERLING



Heat-Vented  TRUCK AND BUS TIRES

Also manufacturers of Pontons • Reconnaissance Boats • Parts for Gas Masks • Bullet-Seal Tubes and Military Tires for our Armed Forces

SEIBERLING ON RUBBER IS LIKE STERLING ON SILVER

FREE PUBLICATIONS

(CONTINUED FROM PAGE 42)

In addition to the certificate holder, this free offer also includes an information booklet which should help clear up many questions in the minds of operators in connection with the use of Certificates of War Necessity. Write L85 on the postcard for this double sample offer.

L86. ODT Service Manuals

Every fleet operator is vitally concerned with the conservation of parts and the proper maintenance of his fleet. To help

him in this connection, there are available now two reports on engine repair methods prepared by the SAE at the request of the ODT. These reports were published in the January, 1943, issue of CCJ. Now they may be had in bound form.

The reports deal with proper methods of reconditioning cast-in-block engines, fitting sleeves and with techniques for engine bearing replacement. The ODT hopes readers will not be disappointed if there is a slight delay in supplying their requests. Write L86 on the postcard for your free copies.

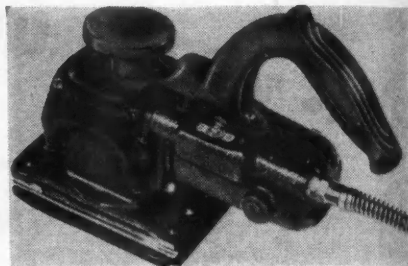
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(Please resume your reading on P. 43)

NEW PRODUCTS

(CONTINUED FROM PAGE 43)

"Nedco" Division, Berea, Ohio. The manufacturer states that it includes a unique principle that eliminates the violent vibration and lost motion ordinarily expected from a speed of 3000 oscillations per min.



The unit is supplied completely ready to plug in the nearest outlet. Equipped with hand grips, the balanced weight and smooth action follow even pressure on the work with only guidance necessary by the worker. The motor is easily removed without disturbing the drive assembly whenever maintenance is necessary.

Use free postcard for more details.

END

(Please resume your reading on P. 44)

AIR CARGO LOOKS TO TRUCKS

(CONTINUED FROM PAGE 52)

service. The service the shipper actually receives may not even average one mile a minute. It is found generally in utilizing over-all averages that consignor to consignee speeds vary with the distance: from 46 miles per hour for a 500-mile flight, to 95 miles per hour for a 3000-mile flight.

Operating experience to date shows fairly clearly that the airplane becomes more efficient as a long-haul carrier, and the trend appears to be in this direction in the future, so far as great volumes are concerned. An examination of LCL air shipments shows that only 30 per cent of all shipments over an extended period travel more than 650 miles, while an analysis of air express shows that 84 per cent of the traffic travels a distance over 650 miles.

No one can say at this early date, when air cargoes start moving in large volume in commercial service, (TURN TO PAGE 102, PLEASE)

SAVE YOUR TIRES

USE Heat-Resisting TIRE VALVE SEALS—



No. 664
VALVE CAP
Heat-Resisting
Rubber Seal



No. 100-88
VALVE INSIDE
Heat-Resisting
Rubber Seal

Maintenance of air pressure is the prime necessity to tire conservation. You must keep valves air tight. That's why valve caps and insides with heat resisting seals are so vital under the abnormal heat conditions common in heavy duty motor transportation service. These extra protection valve parts guard against air loss, save tire wear, cut down service delays. And the cost is no more than for ordinary equipment. Get them from your jobber or tire supplier, today.

THE DILL MANUFACTURING COMPANY
700 E. 82nd St., Cleveland, O.
Akron - Los Angeles - Detroit - Toronto

SAVE
RUBBER
for
VITAL WAR
NEEDS

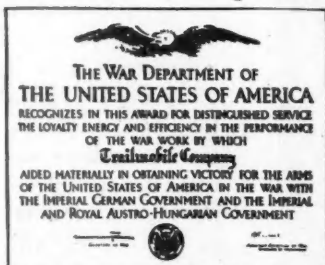
DILL Heat-Resisting VALVE CAPS AND INSIDES



AN "E" FOR EXCELLENCE

FOR WHICH WE HOPE TO FIND A SECOND MEANING

Soon after World War I, Trailmobile received this citation from the War Department:



Today—25 years later—the Army and Navy have again honored the men and women at Trailmobile by conferring on them the prized “E” pennant for their “fine record in the production of war equipment.”

Every one of us is proud of that flag, of what it stands for. Every one of us is thankful that he or she has been able to contribute a part to the win-

ning of that flag. Yes, and we're happy that the years that passed between the receiving of these two high honors gave us the experience and the “know how” and the coordination that allowed us to throw ourselves behind the war effort—100%—when the call came.

This is a new kind of war—a war of movement, of action. Supplies and equipment must be rushed across deserts and jungles and mountains to keep up with our fighting forces. Logistics—the task of moving these supplies—has become a science. A science to which the wartime products of Trailmobile have added a welcome, worth-while chapter.

And as all the men and women at Trailmobile look at that flag, they roll up their sleeves a little higher. Because they hope that what they are doing today to help win the war will also mean that never again will it be necessary to make such an award. We hope that the proudly waving “E” may also stand for “Eternal Peace.”

Some of the Trailmobile equipment that is now serving our fighting forces 25-ton Pontoon Bridge Trailer • Animal and Cargo Van • Air Force Carryall • Air Force Office Trailer • Mobile Laundry Unit • Air Force Wrecker Trailer • Army Tank Transport



TRAILMOBILE



TODAY'S BATTLE FRONTS ARE THE PROVING GROUNDS FOR THE TRAILMOBILES OF TOMORROW
Trailer Company of America, Cincinnati, Ohio • Berkeley, California

AIR CARGO LOOKS TO TRUCKS

(CONTINUED FROM PAGE 100)

just how the ground service will ultimately be handled. The airlines today have had experience with two types. The Railway Express Agency handles pickups and deliveries of air express on a national basis. On the other hand, the airlines throughout the United States contract with private carriers to perform the passen-

ger transportation service between airport and centralized city terminals.

Whether public interest will permit the railroad controlled express agency to expand into air freight as well as air express in the post-war development, whether private trucking organizations will be contracted with, allowing the airlines to handle the freight, or whether the airlines themselves will deposit the air freight at a centralized terminal in major cities as a national procedure after

the war cannot be answered at this time.

There is little economy in spending a billion dollars on the development of air speed and the ability to carry large air loads if the return on this investment is nullified by the lack of ability to handle cargoes efficiently and rapidly on the ground.

Recently, members of the aircraft manufacturing industries, air carriers, and a few allied industries organized the Air Cargo Research Association with the object of collectively studying many of these problems. Members of the association are, for the most part, traffic experts, research personnel or engineers. Together, they are investigating such problems as tare, which involves elimination of the exceedingly high wastage in packaging. This brings up problems of stowage, which include new precision loading and handling machinery, cabin winches, multiple rail tracks, tricycle landing gears, load balance computers, roller platforms, tie-down apparatus, loading stanchions, and a host of other problems.

The loading, itself, involves investigation and creation of entirely new methods of conveying cargoes to the plane cabin. This subject includes mobile units with adjustable platforms, portable and stationary elevators and cranes fork lift mountings, hand equipment, etc. The problems also include entirely new types of warehouses, new locations which require the provision of loading facilities for airplanes with protection from weather and severe climatic conditions, and storage for entirely new types of commodities made up of perishables which heretofore have only been transported a short radius from their production centers.

The actual pickup and delivery problems which must be solved in this age of the Flying Forties will undoubtedly require an entirely new, fast, and flexible type of motor truck—perhaps made out of light metals and something that can maneuver through heavy traffic with the minimum of delay. Through the development of pickup services, a vast network of off-line pickup and deliveries must be created.

Both in ground transportation and handling, new methods must be provided to contend with post-war air cargoes which will include provisions for dry, wet and freezing climates;



ALL- SIZE

UNIVERSAL HOSE CLAMPS

ARE

Completely Universal

- Cost Less
- Easiest to Use
- 100% Self-Locking

Approved Self-Locking Clamps that accommodate an range of diameter sizes.

Eliminate That Expensive Bottleneck With **ALL-SIZE CLAMPS**.. Buy **ONE** Length —Replace 100 Different Preformed Clamps.

- A single All-Size Clamp will replace more than a hundred sizes of preformed clamps—reducing your clamp inventory and assuring the right size clamp on hand when needed!
- This powerful, completely self-locking clamp has been tested and proved superior for both production and service work. It has sufficient take-up for use on synthetic rubber hose, and it can be installed around, or removed from, connected lines. It also is usable over and over again on either larger or smaller sizes.
- All-Size Clamps come flat in any length to fit any desired range of diameter sizes. They are acknowledged superior to the strongest clamps made—but cost much less and are infinitely easier to use! . . .

If you now use clamps for hose or general connections learn how the ALL-SIZE Clamp can save time, labor and money for you!



CENTRAL EQUIPMENT CO.

1018 SO. WABASH AVENUE • CHICAGO ILLINOIS

SEND TODAY
FOR FREE
SAMPLES
AND PRICES

perishables, inflammables, explosives, fluids, and valuables.

While this represents only a few of the difficulties facing the air carriers and manufacturers of today and tomorrow, it is nevertheless a challenge to the automotive and equipment producers who hold the answer in their research and experimentation departments.

To truck industries, it may mean reshifting their routes of operation to follow the new centers of aviation as they form the nucleus of international trade. It may mean complete revolution in equipment.

END

(Please resume your reading on P. 53)

QUIZ ANSWERS

(Questions on Page 62)

1. c. Hevea, which is the botanical name for natural rubber. The other three are synthetic rubbers of one sort or other.

2. b. Charles Erwin Wilson is president of General Motors. Charles Edward Wilson was president of General Electric but resigned to become vice-chairman of W.P.B. Charles Eben Wilson is vice-president of Worthington Pump and Machinery Company.

3. c. 96 coupons, each one worth five gallons of gasoline.

4. a. General Motors, with contracts amounting to \$4,884,000,000 placed between June 1940 and June 1942. Ford was seventh on the list with \$1,392,000,000 and Chrysler tenth with \$925,000,000.

5. a. The Alcan Highway is an 1800-mile highway through Western Canada and Alaska . . . the only land route to our vital Alaskan defenses. It was built by Army engineers in a single construction season, and trucks are now operating over the entire route.

6. b. Charcoal burners. In Sao Paulo alone, Brazil's principal industrial city, 10,000 gasogenio outfits are expected to be in operation in 1943. The government gasogenio commission in its own workshop is equipping five trucks a day, and Ford's and General Motors' Brazilian plants are now in production, too. Brazil is oil-less, and the use of the converted trucks in the interior of the country is expected even after the war.

7. d. More than a half-million commercial motor vehicles were scrapped during 1941 . . . about one out of every nine trucks. With practically no new trucks available, that figure was cut to approximately 200,000 in 1942.

8. d. Bew-taa-dye'-een, according to Webster.

9. a. The "Big Inch" is the much publicized 24-inch pipe line from Texas to the Atlantic Seaboard.

10. b. Studebaker, which was a leading builder of carriages before the advent of the motor vehicle.



U. S. ARMY SIGNAL CORPS PHOTO

GALIONS are helping
to build Camps and
Highways near the
Fighting Front !

GALION

HYDRAULIC HOISTS and DUMP BODIES



*are built
to outlast the Chassis*

THE GALION ALLSTEEL BODY CO.
Galion, Ohio

DAIRY'S PM CUTS ROAD FAILURES 94%

(CONTINUED FROM PAGE 44)

We operate 508 trucks, 41 truck-tractors, 17 trailers and 15 passenger cars. To provide efficient service for these vehicles, we maintain 13 repair shops in the entire territory and we do about 80 per cent of our own work, sending out the balance, which consists mainly of machine work, painting, upholstery

and body work, and part of our electrical jobs. Our emergency road repairs are handled almost entirely by our own mechanics. Ordinarily, we take the damaged truck to our nearest shop, either under its own power or with a tow car. About one per cent of road failures are taken to outside shops—when they are nearer or more convenient.

We employ 25 mechanics, 8 lubricators and 6 helpers. We prefer all-round mechanics, although we have three specialists for motor assembly

and certain kinds of machine work. Our problems are not acute, as yet, even though we have lost three men to the army and navy. We do not stagger the shop men's working hours. We haven't found it necessary, as yet, but we may have to come to it.

Our preventive maintenance is handled on a periodic mileage basis. We consider that mileage is the only factor that should determine this point; if a truck travels 300 miles in one day, it is far more in need of a check-up than some other truck that, for example, has traveled only 50 miles.

We have at least three trucks in each shop for repairs at all times. Some come in every two months, some every five months, but usually after they have traveled from 1000 to 3000 miles, depending on the type of equipment and the nature of the work being done.

A detailed record is kept of all PM work. These records, illustrated in Fig. 1, also show the various parts checked. It will be noticed that the forms are identified with large letters A and B, in the upper right hand corner. This shows how we arrange our schedules. Schedule A provides for 36 operations, besides lubrication, and schedule B comprises 22 points. A summary record of these operations is kept on a large form, which is the master record.

It will be noticed that both A and B schedules show tire checks. We inspect all tires for wear and signs of abuse twice a week. This, together with our other tire maintenance methods, has cut down our tire road failures at least 50 per cent. We are particular about our tires. We watch them like hawks, you might say. We take care of them and we keep track of them. But we don't keep records in as great a detail as we once did. At that time we branded each tire. We kept a record of each tire, to the last detail. We could give the life history of every tire. We could almost tell you where each tire was and what it was doing at any given moment. But we abandoned that, to a great extent. It proved too expensive. It kept one man busy making and taking care of these records.

The mileage we get out of our tires depends, of course, on the type
(TURN TO PAGE 107, PLEASE)



THE Gremlins' FIRST Lesson
IS ABOUT
MARQUETTE
REGISTERED U.S. PAT. OFFICE
A.C. ARC WELDERS

The pesky Gremlins like nothing better than to tie up busy trucks in the repair shop. But they steer clear of operators who use MARQUETTE A. C. Arc Welders.

They're taught early that these versatile machines are the perfect answer to today's problem of "keeping 'em rolling". They learn that the "Marquette Way" saves critical war materials by making speedy, low cost repairs without replacements and quickly gets hard pressed fleet

units back on the road again. No more waiting for hard-to-get spare parts.

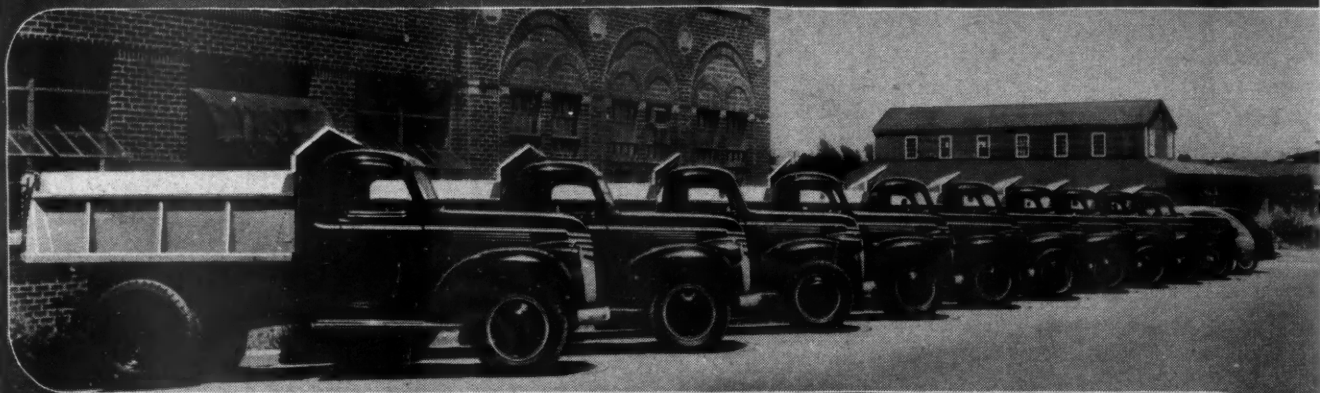
Instantaneous heat selection . . . Superb arc performance . . . No "magnetic blow" . . . Automatic voltage control . . . All asbestos insulation . . . Simple, low cost operation . . . are MARQUETTE features that the Gremlins can't lick. To help you get rid of these pesky saboteurs Marquette offers prompt delivery on priority rated orders.



MARQUETTE
REGISTERED U.S. PAT. OFFICE

A.C. ARC WELDERS

VITAL WAR CONSTRUCTION



ESSENTIAL CIVILIAN TRANSPORT



...and your post-war haulage!

**HEIL bodies
and hoists
deliver plus
performance
all along the line**



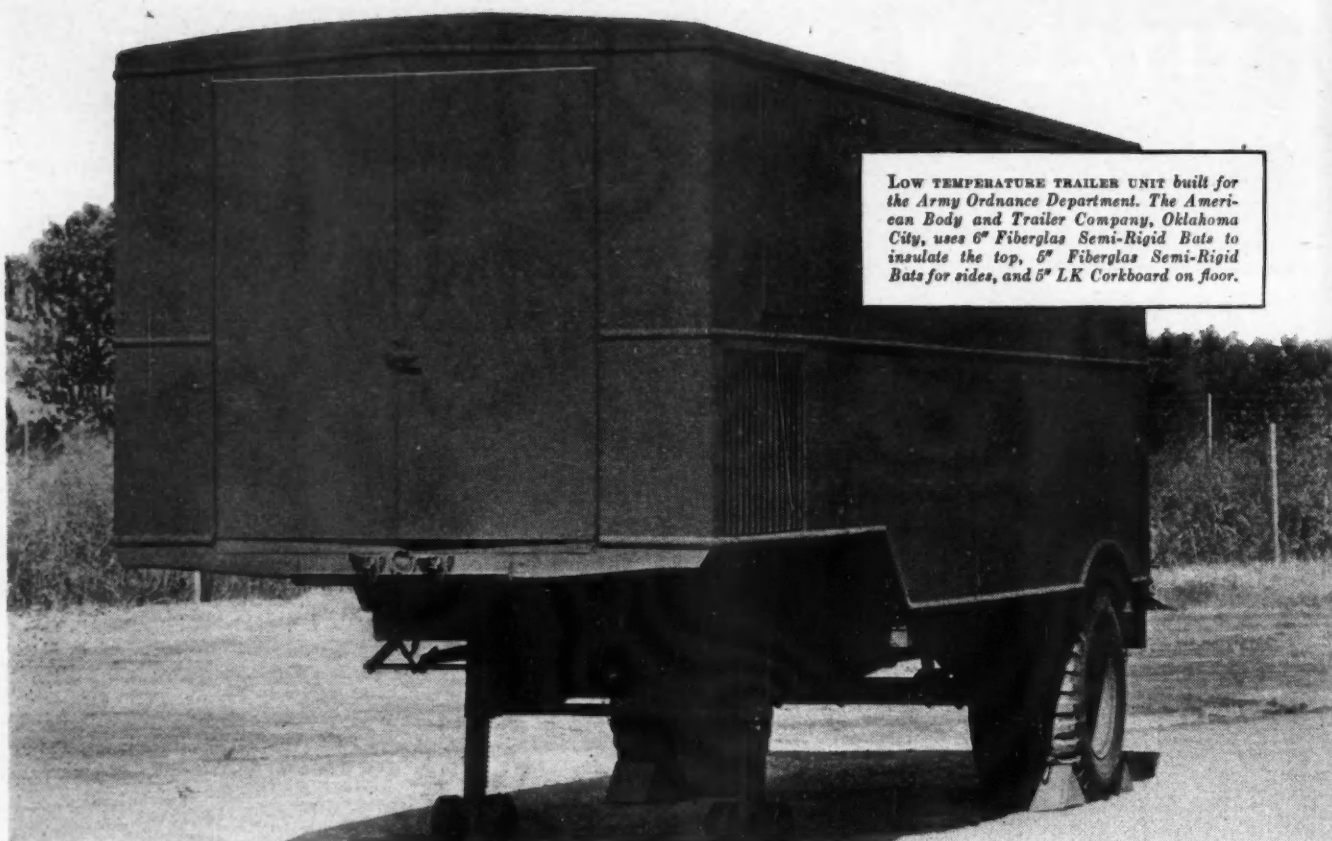
THE HEIL CO.

GENERAL OFFICES

MILWAUKEE, WISCONSIN

On the home front and on war fronts the world over, this Quality-built equipment is vindicating the judgment of those responsible for its selection. Letters from Heil workers now away in the fighting services tell of their pride and satisfaction in the equipment they once helped to make, as they chance to see it in action under severe conditions . . . The lessons of war will mean something to you when peace comes. — for Heil's war production is closely related to its normal peacetime operations. Look to Heil for progress in design and construction of bodies and hoists . . . Meanwhile, your nearby Heil distributor stands ready to render a specialized maintenance and repair service on the equipment you now have. Contact him now — and "keep 'em rolling" for the duration.

BH-67



LOW TEMPERATURE TRAILER UNIT built for the Army Ordnance Department. The American Body and Trailer Company, Oklahoma City, uses 6" Fiberglas Semi-Rigid Bats to insulate the top, 6" Fiberglas Semi-Rigid Bats for sides, and 5" LK Corkboard on floor.

FROZEN FOODS FOR FIGHTING MEN

*... Protected by Corkboard and Fiberglas**

TO protect frozen foods and chilled meats enroute to our armed forces requires heavily insulated trailer bodies. These bodies must assure maintenance of below freezing temperatures under service conditions in any climate. Armstrong's LK Corkboard and Fiberglas insulate hundreds of these bodies, assuring efficient and dependable operation.

LK CORKBOARD

Armstrong's LK Corkboard is recommended for the floor of every type of insulated truck body. It is light in weight and in addition to insulating effectively it supports the load, thus reducing the number of cross members required. It also reduces vibration transmission.

Natural moisture resistance helps

cork to maintain its high insulating efficiency in service. Years of use have proved its dependability and effectiveness under all conditions.

FIBERGLAS

Made from fine threads of molten glass, compressed into resilient, lightweight, semi-rigid bats, Fiberglas forms a highly effective barrier to heat. These bats are easily cut to any required size or shape. They can be quickly and easily installed. And there's no waste—all trim

pieces can be completely utilized.

Neither severe vibration, nor jolts will cause Fiberglas Semi-Rigid Bats to settle or sag. Fiberglas is nonburning, nondecaying, and the fibers will not absorb moisture because they are glass.

Get the full facts about Armstrong's Insulating Materials. Send for your free copy of "Insulation for Trucks and Trailers." Write today to Armstrong Cork Co., Building Materials Div., 3503 Concord St., Lancaster, Pa.



*Reg. U. S. Pat. Off. Owens-Corning Fiberglas Corporation.

ARMSTRONG'S EQUIPMENT INSULATION

LK CORKBOARD • FIBERGLAS* • TEMLOK

DAIRY'S PM CUTS ROAD FAILURES 94%

(CONTINUED FROM PAGE 104)

of service they are in. The tires on our wholesale trucks, here in San Francisco, average about 18,000 miles for the original tire and about 14,000 for the recaps. On the retail routes, where the trucks are stopping and starting and turning constantly, we get about 8000 miles for the originals and about 7000 for the recaps. Of course, here in San Francisco there is much hill driving. In San Jose, where the terrain is virtually all level, our trucks on retail routes get twice that mileage.

We recap our tires from one to as much as three times. We recap as soon as the tire has become smooth, or when the tread disappears. We never wait until the tire gets worn to the breaker strip, or anywhere near it. The few extra miles we might get in that sort of service might impair the carcass. That's why many recaps fail—waiting too long to make the change.

We match our dual tires for mounting by putting new tires opposite each other and the same with old one. We never match a new tire with an old one. We also try to put the same makes of tires opposite each other. The situation also depends a great deal on the road and load condition, and the kind of service the truck is in. We take all that into consideration.

Our drivers are not told to check air pressure. We attend to that in the shop. However, if a driver is on a long trip, that is different. After he has made a run of several hundred miles in one day, he is supposed to see to it that the man in the shop servicing his truck checks the air pressure and attends to it accordingly.

We do not use patches nor reliners, though occasionally we do install a new section. If we have a tire that has a blow-out, but has good tread and otherwise is okeh, we send it to the tire shop, insert a new section and get the remaining life out of the tire. The patches and reliners we have tried have not proved satisfactory—there is too much friction—although we have put one in occasionally, just as a temporary job in an emergency.

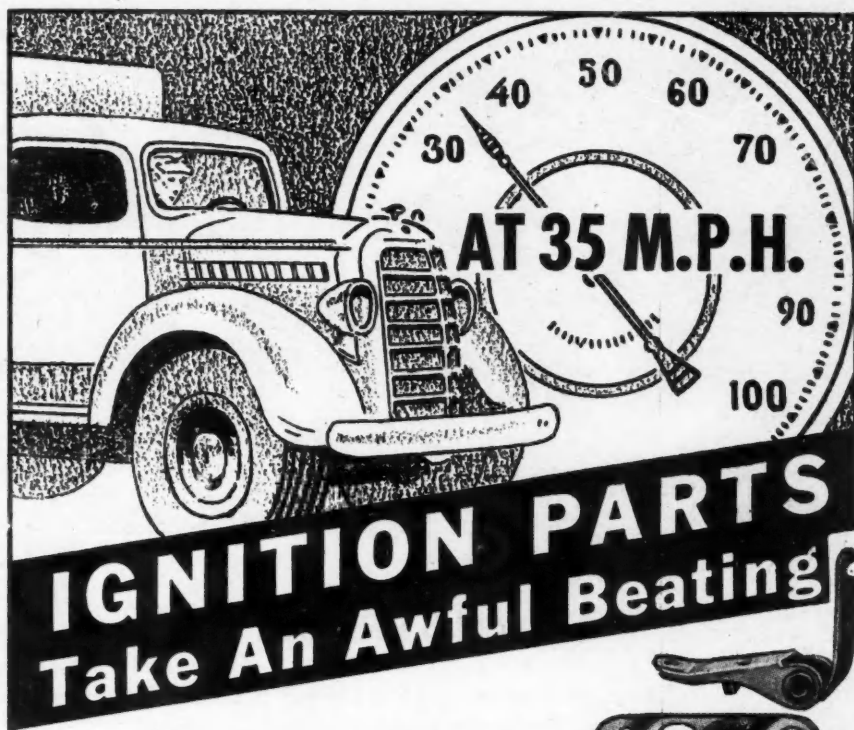
There is one other thing we have

done in our San Francisco plant to get more mileage out of tires. We have used air-sealed tubes in tires not good enough for recapping or anything else. Thus we get more life out of the tire, for the thicker rubber of the air-sealed tubes does not pinch in the cracks of the casings.

We have not neglected gasoline economy, by any means. Our trucks average 5.5 miles per gallon. Our trucks' engines are given a regular engine tune-up on a mileage basis

of from 1000 to 3000 miles, depending on the type of equipment and the service in which it is engaged. This tune-up consists of going over the spark plugs, the points, compression, timing, carburetion, etc., and making such adjustments or repairs as may be necessary, as indicated in connection with the use of our A and B forms. We use as many instruments as we can obtain for making the operation thorough and effective, including the exhaust gas

(TURN TO PAGE 108, PLEASE)



★ **INSPECT** Frequently

★ **REPAIR** Where Possible

★ **REPLACE** When Necessary

With today's restricted driving speeds, heavier loads and wartime schedules, the need for **QUALITY** ignition parts was never greater.

Trucks must start quickly. Maximum gas and oil mileage must be obtained. Wear on moving parts must be minimized. And, "time out" for highway electrical repairs avoided.

To meet these wartime needs you'll find NIEHOFF Approved Quality Parts highly dependable. They are engineered to stand up longer under heavy-duty service and to give improved motor performance.

A complete line of Niehoff Approved Quality Ignition Parts is available through a national network of Niehoff Jobbers. Ask your Jobber's Salesman TODAY!

C. E. NIEHOFF & CO.

4925 Lawrence Ave., Chicago, Ill.

Branch: 1342 S. Flower St., Los Angeles, Calif.

NIEHOFF



DAIRY'S PM CUTS ROAD FAILURES 94%

(CONTINUED FROM PAGE 107)

analyzer, motor analyzer, timing light and point synchronizer.

We use governors on our trucks to control speed. These governors were set, before the war, at from 30 to 45 miles per hour, 45 being the state speed limit. The rate was determined, of course, by the type of truck and the kind of job it was performing. Now, governors are

set at from 30 to 35 miles in town; outside of the city they are still set at 45, although we instruct the drivers to remain under the 35-mile limit.

I don't know what we have been able to save in gasoline by using these governors, but I do know that we have cut down our repair expense materially. Since 1936, when we started our preventive maintenance program and the use of governors we have knocked 15 per cent off our repair bills.

We do not use recording devices to check up on the driving habits of the drivers on most of our vehicles, but we do on our long-distance hauling trucks. This however, is mostly for the time element—to see whether the drivers are reaching certain points on time and not stopping at too many restaurants by the roadside or to chat with other drivers. Thus we keep our hauling schedules pretty well intact, and teach our drivers valuable lessons of promptness.

We have brought the carburetor, also, into our plans for gasoline economy. When we started to use analyzers, we changed jets to get better operation and use less fuel, using a smaller jet in most cases. This has made a considerable saving in our gasoline consumption, but we have not the records to show exactly how much.

We stay pretty close to the factory recommendations in regard to timing the ignition to the fuel. However, the lowering of the octane ratings of the gasolines now on the market has compelled us to retard the spark from one to two degrees, depending on the type of equipment involved.

We salvage virtually all of our mechanical parts and some of our body parts. We make over the engine blocks, fuel pumps, carburetors, transmissions, clutches, drive shafts, differentials, etc. We recover the doors, hinges and similar parts. Before the war we sold most of these to junk dealers.

We use all of the methods available for salvaging. Our crankshafts are sprayed, engine blocks are welded, both by arc and acetylene, and the body parts are done by acetylene welding. The cost of this salvaging is frequently, if not nearly always, higher than the cost of a new part, but we can't get the new parts now. This higher cost is due chiefly to labor conditions, with the increased wages brought about by the war. Under old-time conditions salvaging usually would be cheaper, but, even then, in many cases if a part was cracked or its usefulness was doubtful we didn't bother to salvage, except in cases of emergency. Now salvaging frequently is a life saver.

We do considerable rebuilding, in—
(TURN TO PAGE 110, PLEASE)



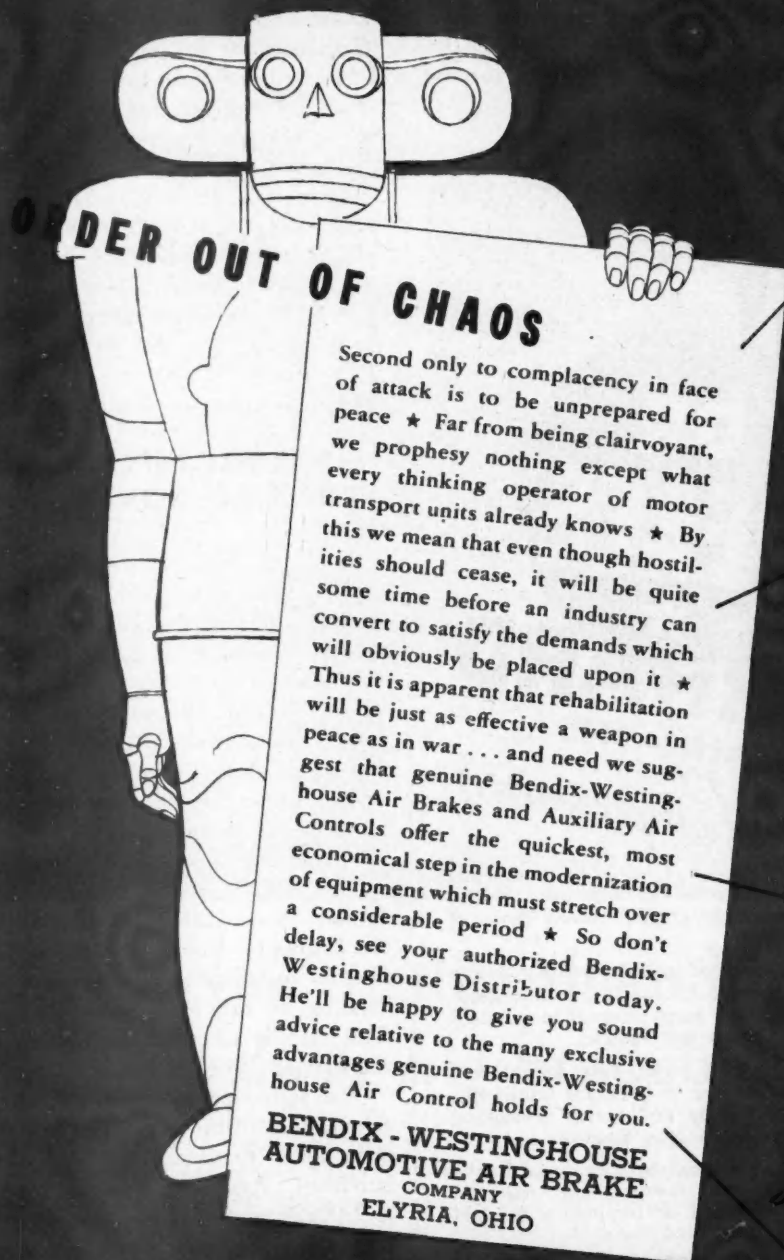
"REMEMBER ME?"

"Sure, you remember! I'm the kid that used to work down at the corner garage... they used to call me 'Grease Monkey.' Well, I'm still at it, see, only this time for Uncle Sam. Now, instead of sedans and jalopies, I work on jeeps, and peeps, and half-tracks and prime-movers. A little different, sure, but one thing's the same... I'm still usin' K-D Valve Tools. An' boy, out here where speed counts, *that's somethin'*. Gotta gettem rollin', but fast. Keep on buyin' War Bonds and Stamps... we'll do our job out here.

K-D Tools have gone to war. We're proud of that. But we have a job to do here at home, too. We are supplying Jobbers just as fast as we can to fill the needs for repairing and servicing essential civilian cars and trucks. K-D Mfg. Co., Lancaster, Pa. and Hamilton, Ontario.

K-D TOOLS
The Hustlers for Your Toolbox!

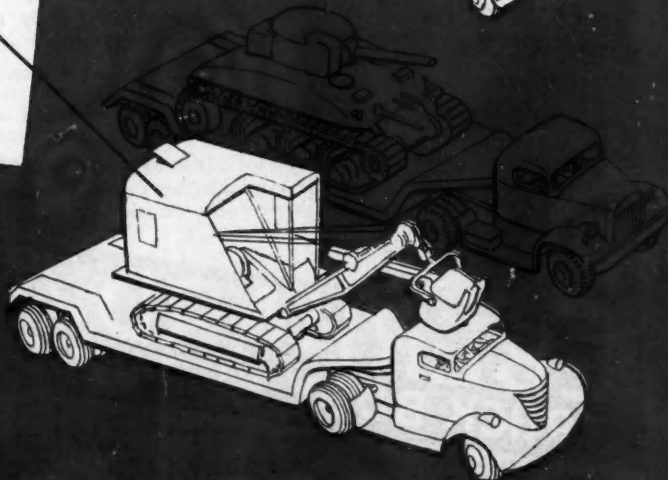
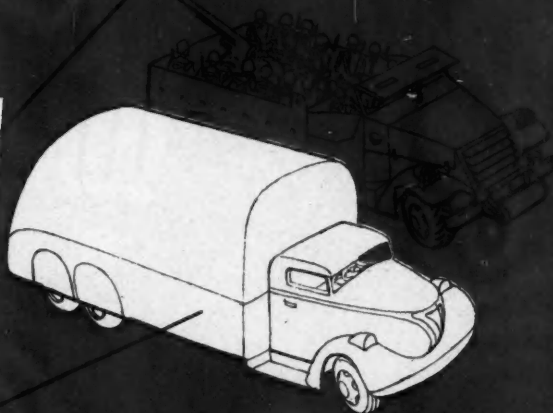
PEACE..



ORDER OUT OF CHAOS

Second only to complacency in face of attack is to be unprepared for peace ★ Far from being clairvoyant, we prophesy nothing except what every thinking operator of motor transport units already knows ★ By this we mean that even though hostilities should cease, it will be quite some time before an industry can convert to satisfy the demands which will obviously be placed upon it ★ Thus it is apparent that rehabilitation will be just as effective a weapon in peace as in war . . . and need we suggest that genuine Bendix-Westinghouse Air Brakes and Auxiliary Air Controls offer the quickest, most economical step in the modernization of equipment which must stretch over a considerable period ★ So don't delay, see your authorized Bendix-Westinghouse Distributor today. He'll be happy to give you sound advice relative to the many exclusive advantages genuine Bendix-Westinghouse Air Control holds for you.

**BENDIX - WESTINGHOUSE
AUTOMOTIVE AIR BRAKE
COMPANY
ELYRIA, OHIO**



AN ORGANIZATION WHOSE UNDIVIDED EFFORT AND COMPLETE RESOURCES
ARE DEVOTED TO YOUR CONVENIENCE AND SAFETY

DAIRY'S PM CUTS ROAD FAILURES 94%

(CONTINUED FROM PAGE 108)

cluding sometimes practically all of the parts. If a motor is bad, we go clear through and bring everything up to as nearly normal as possible. We do the same thing with the body, etc., replacing all of the necessary parts. When we can, we use a salvaged part in repairing or rebuilding a unit, but under present conditions, in many cases, where we formerly

used metal we are forced now to use wood. Also, we sometimes have to employ a different metal than before.

Our oil-economy program is one of our important factors and we are very particular to enforce it. We check the oil level in the crankcase every day in some of our trucks and every other day in others, depending on the conditions of service and mileage. We change the oil in the crankcases, on the average, every 15,000 miles. All of our trucks are equipped with oil filters.

We subscribe to a crankcase-oil laboratory testing service and we follow implicitly the instructions they give us, based on their tests.

We know that the use of oil filters in our trucks has reduced our oil costs materially, but we can't say how much because we have used them so long that we have nothing to compare them with. We also know that it improves engine performance, for we get longer life out of our engines, and that maintenance costs are reduced, for we don't have to go into the engine so often. We use cartridge-filler type of filter. We have a set period of changing the cartridges every 5000 miles, but we change them oftener than that if the crankcase inspection service recommends it. We buy our replacement cartridges.

END

(Please resume your reading on P. 45)

FITTING INFLATION TO LOAD CONDITIONS

(CONTINUED FROM PAGE 40)

The first scale provides a basic index of the tire's deflection which is determined by the measurement of the undeflected height of the tire above the rim flange. This undeflected measurement is taken at the top of the tire, as shown in Fig. 1, except where fender obstruction occurs when it is taken on the side, as shown in Fig. 3.

The second scale provides the deflected measurement of all regular truck tires to determine if the deflection is insufficient or excessive in relation to the load being carried. This step is taken at the bottom of the tire, as shown in Fig. 2.

The following example will show the relation of the two scales and the steps taken to obtain the final measurement. Assuming that the tire is a 9:00x20 and that the reading obtained for the undeflected height on scale No. 1 was 83, the tire man then sets the cross arm on scale No. 2 to 83. This adjustment fixes the cross arm to the tire's proper deflected height, which is the distance from the base of the gage to the pointed end of the cross arm, as can be seen in Fig. 2.

The tire man now adjusts the air pressure, up or down, until the pointed tip of the cross arm just

(TURN TO PAGE 112, PLEASE)



Eberhard

HINGES
LOCK HANDLES
LATCHES
DOOR IRONS
DOOR CONTROLS
SEAT IRONS
LOCK HANDLES
SEAT PEDESTALS
REFRIGERATOR
LOCKS
PANEL DOOR
LOCKS
VAN BODY
LOCKS
SLIDING DOOR
LOCKS
LADDER HOLDERS
ETC.

EBERHARD
MAINTAINS THE
Standard of Supremacy

The demands imposed by war upon trucks, trailers and their equipment greatly exceed those of normal activities.

Naturally, numerous items of truck hardware required for this service are of special design. It is highly gratifying, however, to note how many diversified standard Eberhard items are in use on war vehicles.

The fact that most of these items were suitable for use without change is a tribute to Eberhard knowledge of conditions, expert designing and policy of making each piece of equipment *better than necessary*.

Many special castings are also being produced in the vast Eberhard malleable iron foundries and delivered "in the rough", semi-machined or completely finished ready for assembly.

Despite our intense war effort most catalog items are still available for shipment from stock with sufficient priority.

EBERHARD *Long Run*
TRUCK BODY FITTINGS **E**

EBERHARD MANUFACTURING CO.

Division of the Eastern Malleable Iron Company • CLEVELAND, OHIO



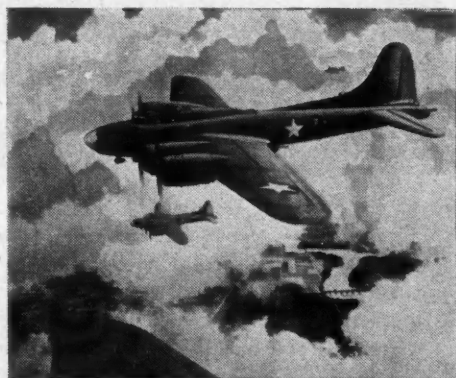
Arctic cold on the Alcan highway doesn't faze these big Studebaker trucks

HUNDREDS upon hundreds of huge, multiple-drive Studebaker trucks are rumbling over the wild, rugged route of the great new 1610-mile Alaska-Canada highway. More of these big Studebakers are in service on this amazing military road than any other make of truck. And despite temperatures that often drop far below zero, Studebaker stamina is getting the cargoes of vital supplies through to our important North Pacific theater of war.

Tens of thousands of multiple-drive Studebaker military trucks are in service on the supply lines and at the fighting fronts of the United Nations

all over the world. And tens of thousands more are on the way.

Studebaker engineering and craftsmanship provide Studebaker trucks in wartime with the same stand-out superiorities for which they were so widely recognized in peacetime. Through generation after generation, for more than 91 years, the men of Studebaker have made it their habit to "give more than they promise." And that is still their watchword in the manufacture of big, multiple-drive military trucks, Wright Cyclone engines for the Boeing Flying Fortress and all the other vital war matériel which they are producing now.



Studebaker builds Wright Cyclone engines for the famous Boeing Flying Fortress, big multiple-drive military trucks for the United Nations, as well as much other war matériel.

FITTING INFLATION TO LOAD CONDITIONS

(CONTINUED FROM PAGE 110)

touches the underside of the rim flange. The tire now is properly inflated for the load it is carrying.

The other scales are used as follows: scale No. 3 measures the deflection for passenger car tires, as shown in Fig. 3; scale No. 4 measures the deflection for the extra heavy treads, such as General's C.D. truck tire.

Of special interest to fleet operators is the fact that the Deflect-O-Gauge is also used to match dual tires scientifically. The instruction issued by The General Tire & Rubber Company for matching dual tires with the Deflect-O-Gauge is as follows:

"Both tires should be the same size so their deflection will be the same. Take the undeflected reading of each tire separately to determine any noticeable difference in size. Dual tires should not differ more than two points on the No. 1 scale, which is .2 in. Even with this slight variation in size, the larger tire must be on the

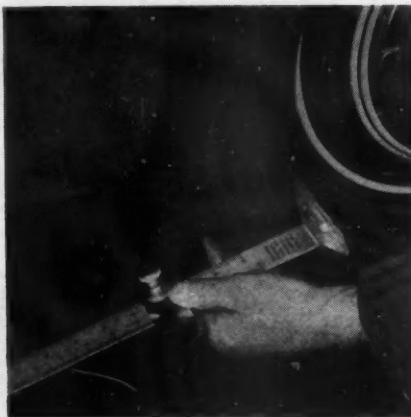


Fig. 3. Where fenders obstruct the first step may be measured at side, off floor

outside position. If the difference is greater than .2 in., substitute another tire so that the two dual tires will match as closely as possible.

"After making sure that the tires are properly matched, the deflection of both can be measured by checking the outside tire only, using the gage in the same manner as when checking single tires. However, in releasing or adding air to bring the tires to the proper deflection, the air pressure in both tires must be equalized.

"After the tires have been adjusted equally to their proper deflection, it is advisable to add five lb. additional pressure to the outside tire. This will compensate for average road crown condition found in ordinary operation."

By following the simple instructions provided, General Tire engineers point out that the uncertainties of overloading and dual matching, regardless of make, size, ply, type or condition of wear, are easily and scientifically controlled.

END

(Please resume your reading on P. 41)



The employees and management of the Weaver Manufacturing Co. were awarded the Army-Navy "E". Shown above are I. A. Weaver, president of the company, accepting the burgee from Lt. Col. John Slezak, Deputy Chief of the Chicago Ordnance District.

Serving the automotive trade for Fifteen Years

**KEEP AMERICA ON WHEELS
TO BEAT THE AXIS HEELS**

Champ-Items No. 951 Radius Arm and Brake Silencer for Chevrolet knee-action models 1934-38 and Pontiac 1934-36. Eliminates all rattle and prevents further wear by applying constant pressure to arm and brake plate. Can be installed in a few minutes. (U. S. Patent No. 2147178).
List price.....\$1.60 per pair



Champ-Items No. 949 Self-threading Oversize Drain Plugs for all popular makes of cars and trucks. Here is a real life-saver when drain plug is stripped or lost.



(Pat. No. 2,257,441)

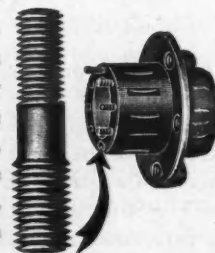
No. 949A—1/2" Oversize for Chevrolet, Pontiac, Oldsmobile, and GMC truckList 30c each

No. 949B—5/8" Oversize for Buick, Hupmobile, and PackardList 35c each

No. 949C—3/4" Oversize for Oldsmobile, LaSalle and GMC truckList 35c each

No. 949G—3/4" Oversize for Ford, Studebaker, and CadillacList 35c each

Champ-Items No. 407 Oversize and Standard Rear Wheel Studs, for cars and trucks—used when threads are stripped or stud is broken off; or when wheel flange holes and axle flange holes are worn. Made of high tensile strength steel. (See your Jobber for lists of sizes and makes).
List price.....20c to 35c each



CHAMP-ITEMS, Inc.

6191 MAPLE AVE., ST. LOUIS, MO.

Oversize and Standard Rear Wheel Studs for Trucks...
Self-threading Oversize Drain Plugs and Gas Fills for All Cars...
Window Regulators, Mirror Kits...
Self-threading Screw Assort.

Studs... Replacement Door Lock Springs... Motor Supports and Shock Absorber Links... Spring Clamps, Center Bolts and Grinders...
Replacement Speedometer Cable Assemblies.





BLUE BOY DAIRY

relies on

Thermoid Brake Linings



MILK—LIKE THE MAIL— MUST GET THROUGH!

Mr. James W. Bell, Fleet Superintendent of Blue Boy Dairy, Rochester, New York, is well aware of the essential service being rendered to the youngsters and adults of Rochester and environs by the 21 delivery trucks in his charge. He is taking every possible step to conserve the life of his units, and prolong their efficiency.

For more than two years, this fleet has been using Thermoid Brake Linings, and Mr. Bell has expressed himself as being highly pleased with their all-round performance. Mr. Bell comments on 3 specific benefits received from Thermoid Brake Linings:

- 1 LONG MILEAGE—with resultant economy in operating costs.
- 2 EXCELLENT BRAKING ABILITY—which helps to keep accidents to a minimum.
- 3 FREEDOM FROM SQUEAKS OR SQUEALS—an important factor in early morning deliveries.

If you want these advantages for your own fleet, try Thermoid Brake Linings on your own next brake job—preferably one of your toughest units. You'll be back for more . . . Thermoid Brake Linings are "RIGHT the first time"!

Thermoid

Custom-Built Brake Lining Sets • CBB Sets • Thermo-Blocks for heaviest duty

★ THERMOID COMPANY ★ *Trenton, New Jersey* ★

WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 35)

able idle equipment but further studies must be made to determine if the equipment is the sort that can be used in operations where there are shortages. A sample study, covering a score of the larger cities on the Eastern Seaboard, revealed that about as much equipment is idle due to lack of drivers as to mechanical diffi-

culties. Operators are urged by ODT to get in their idle equipment reports so that data on manpower and parts shortages can be compiled to convince the War Manpower Commission and the War Production Board that truck transportation needs some relief.

Semi-Freeze of Drivers ?

Deferment of certain classes of employees in the field of motor transport does not seem to be providing the industry with positive insurance

that these men will not be drafted into war plants and into the armed services. Motor transport is considered a war-essential industry by the War Manpower Commission but local Selective Service Boards act so much upon their own initiative and interpret so-called "directives" in the light of local conditions that truck operators cannot be certain that their essentiality will be respected. Recognizing this state of affairs, a move is afoot to provide a remedy. If the move is successful drivers in what are considered the more essential types of truck operation will be frozen in their present jobs and given about a 4-A draft classification. Wise-crackers are wisely referring to this as a "semi-freeze."

Gas Rations Excessive

The ODT has made an interesting study that seems to reflect on the honesty of many truck operators. Checking up on their gasoline allotments under the Certificate of War Necessity Order (T-rn-y's T-rk-y) the ODT compared these with the gasoline actually consumed in a previous quarterly period. When the statistics were tabulated it was found that 50 per cent of the operators requested and got more gasoline than they had previously consumed, and this in the face of mileage conservation orders and patriotic appeals for voluntary cooperation in mileage reduction. An amazing fact is that the compiled statistics vary imperceptibly as between one and two-truck operators and fleet operators and as between the various types of operation. Equally amazing—and rather shameful, if the statistics are correct—is the revelation that 20 per cent of the operators covered by the study "over-estimated" their gasoline requirements by 100 per cent.

Budget, Budget, Who's Got Dough

The next Federal fiscal year begins July 1 and most bureaus are in the throes of budget trouble. The Division of Motor Transport of ODT is no exception. The division is trying to get enough dough to continue its present set-up. That means a bigger budget than in the past because there is some question whether the use by ODT of I.C.C. personnel can be continued on the current cost-free basis. (TURN TO PAGE 116, PLEASE)

WEIDENHOFF

Automotive-Aviation

SERVICE EQUIPMENT

The All-American Line-Up---

● Generator, Starter and Magneto Test Benches —

For bench testing all types of passenger cars and commercial vehicle generators and voltage regulators. Several models from which to choose. Capable of handling largest truck, bus and aircraft generators. Starting motors tested for free running and locked torque for electrical resistance and mechanical condition. Magneto test fixture available at purchaser's option.

● Cyclone Battery Charger —

A compact, portable unit for fast battery charging. Built-in analyzer gives immediate and accurate indications of battery condition. Four scales on meter. Meter can be used without interfering with charger operation.

● Constant Potential Battery Charger —

A highly efficient motor-generator set which can be had with or without charging panel. As many batteries may be placed on the charge panel as desired providing total charge rate of all batteries is within full output of generator.

● Distrib-U-Scope —

This precision engineered and built unit affords a complete picture of ignition distributor performance at a glance. No meters to read. Checks for correct cam angle, governor advance, vacuum control, breaker point condition, etc.

● Magnetizer —

A comprehensive unit for charging most types of magneto magnets including two, four and eight pole rotors of revolving magnet type magnetos.

● Engine Analyzers —

Engine analyzers and testers to fill every need. Compact, portable sets for

individual mechanic. Complete deluxe tune-up equipment also available.

● Ignition Coil Tester —

Designed to test a coil completely—on or off motor vehicle—hot or cold. Tests high and low speed conditions, insulation for leakage, continuity and "opens" in primary and secondary.

● Condenser and Resistance Tester —

Complete tests of all condenser conditions. Also tests for shorts, breakdown, leakage and series resistance. Ideal for checking fuel gauge, radio antennae and other electrical devices.

● Ammeter, Voltmeter and Rheostat —

Incorporates an ammeter and voltmeter plus variable resistances with ability to carry ample current. Ideal for checking voltage and current regulators.

● Vacuum, Compression and Fuel Pump Tester —

Edge type vacuum and compression gauges. Low reading pressure gauge for fuel pump test, muffler back pressure, etc.

● Exhaust Analyzer —

A means of accurately and quickly determining carburetion condition. Portability of unit permits removal from cabinet for road testing.

● Electronic Tachometer —

A precision unit which has many and varied uses in engine tune-up work. Precise calibration accomplished by use of a synchronous motor. Ideal for synchronizing dual carburetors, and other factors effecting engine performance.

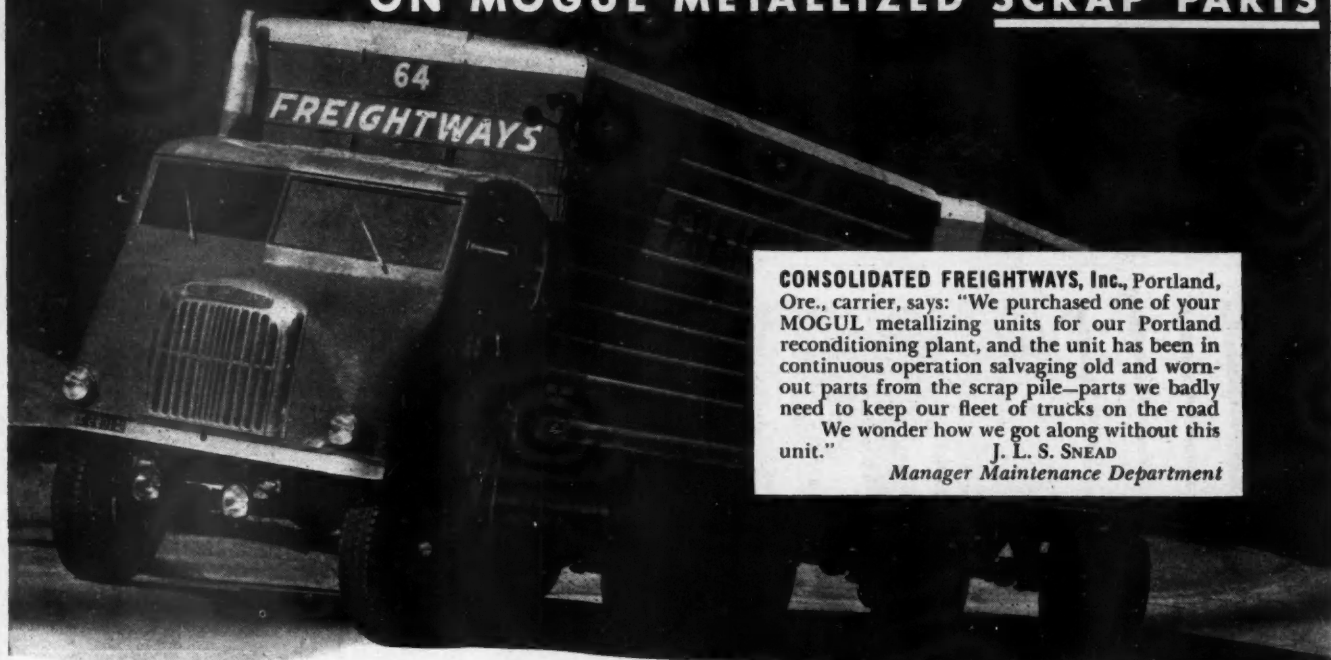
Write for
Particulars



Buy More
War Bonds

JOSEPH WEIDENHOFF, INC.
CHICAGO, ILLINOIS

ROLLING!—75,000 Miles Per Day— ON MOGUL METALLIZED SCRAP PARTS



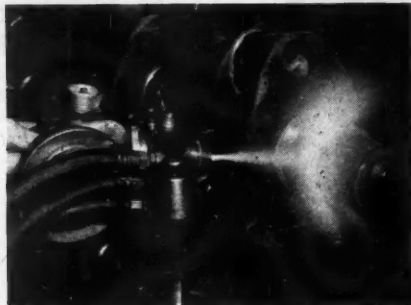
CONSOLIDATED FREIGHTWAYS, Inc., Portland, Ore., carrier, says: "We purchased one of your MOGUL metallizing units for our Portland reconditioning plant, and the unit has been in continuous operation salvaging old and worn-out parts from the scrap pile—parts we badly need to keep our fleet of trucks on the road. We wonder how we got along without this unit."

J. L. S. SNEAD
Manager Maintenance Department

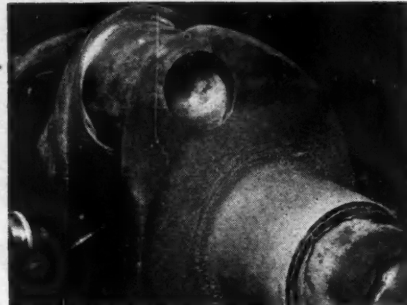
HERE'S HOW TO REBUILD CRANKSHAFT JOURNALS



ROUGH THREADING—the accepted method of preparing shafts for metallizing—is done by turning thread on worn surface with lathe tool set slightly off-center to produce a tearing effect. Threads are cut 18 to the inch. Into these recesses the molten metal is sprayed. Cooling locks the metal permanently to roughened surface.



MOGUL METALLIZING gun mounted on tool post. This high-speed unit has simplified design for ease of operation—is ruggedly built to give years of dependable service. Sprays any metal obtainable in wire form. For spraying, gun is set perpendicular to work and five inches from it for best results. MOGUL can be hand operated.



METALLIZED SURFACE before machining shows granular structure of coating. Finishing characteristics are similar to cast iron. Because a metal-sprayed surface has a slight porosity, it will absorb lubricant for long, hard wear. Metal harder than the parent metal may also be sprayed, thus producing a surface superior to the original.

CUT MAINTENANCE COSTS WITH A MOGUL

They operate 370 pieces of heavy-duty transport units, covering 75,000 miles per day—over highways of 11 states. . . That's how big and vital Consolidated Freightways is. And MOGUL keeps their units running—in the face of scarce spare parts. Since Consolidated Freightways bought their MOGUL metallizing unit (which they did ahead of actual shortage) they've kept it at continuous work salvaging old cast-off parts rescued from the scrap-pile. Read J. L. S. Snead's own statement on MOGUL's work for them, above.

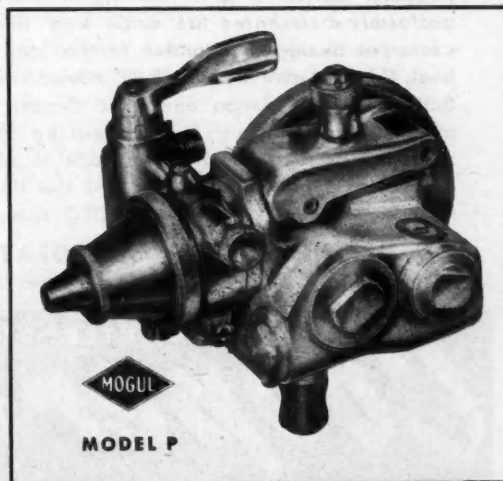
A MOGUL metallizing unit in your shop will start to pay you the first hour of use—cut your maintenance costs as much as 50%—as it's doing for Consolidated Freightways and other top-fleet operators. Write or wire for MOGUL "Equipment and Process" catalog, prepared especially to give every detail needed for analyzing MOGUL's dollar-value in your own shop.

METALLIZING COMPANY OF AMERICA

1338 W. CONGRESS STREET • CHICAGO

1351 East 17th Street, Los Angeles, Cal.

5 State Street, New York City



WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 114)

The I.C.C. is having its own budget bellyache. The Budget Bureau is under Congressional attack itself and is open to suggestions as to how some budgets can be increased while practicing over-all economy. This writer has no idea how many millions ODT is fishing for and certainly in no position to determine if the aggregate

figure is justified. However, he can point out that there are about 26 government agencies that overlap ODT in motor transport matters. The overlapping results in duplication of effort by the bureaucrats and by civilian operators whom they plague with their questionnaires and whatnot. This duplication has reached such a pass that at its last meeting the War Advisory Committee of the National Council of Private Motor Truck Owners recommended that ODT obtain agreement of other government

agencies to channel through ODT all requests for data from motor truck operators. Elimination of this duplication should be a boon to tax-paying truck operators in more ways than one.

J.I.O. Enforcement

The ODT is trying to work out more satisfactory enforcement of the Joint Information Offices order than has been possible with sporadic spot-checks. It will take more men and more money so the plan under consideration is really in the lap of the gods otherwise known as the Budget Bureau. The plan is understood to include more intensive check-ups at points on key intercity highways; letters to operators suspected of violation requesting an explanation; follow-up of each case by the district office, and punitive action in the event of persistent violation.

Tire Capacity Controversy

Truck manufacturers are understood to be pressing their contention that ODT did wrong in its conservation orders when it permitted operators to load their trucks 20 per cent in excess of the gross weight figured by multiplying tire capacity by the number of tires. The manufacturers contend this regulation ignores load distribution entirely and does not help in tire conservation. Equally important is the fact that it ignores the manufacturer's rated gross vehicle weight on which guarantees are based, and as to which manufacturers are on record as preferring for uniform registration purposes. There is no doubt that the net effect of ODT's generosity is to make operators believe that truck manufacturers and their design engineers don't know their business. Overloading has always been frowned on for service-proved reasons but along came an edict completely lacking in authority except the bureaucratic one that has upset the appletart. There is a possibility that the cart may be righted. ODT is considering the contentions—but seriously.

Cooperation Campaign

The ODT is campaigning cooperation. Teams of speakers, made up of ODT and industry personnel, are touring the country to persuade truck operators to enter voluntarily into joint action plans that would con-

(TURN TO PAGE 118, PLEASE)



**QUES: WHAT'S COOPER GOT THAT NO
OTHER TRUCK TIRE HAS?**

**ANS: DISTRIBUTED STRESS CONSTRUCTION
FOR LONGER TOTAL MILEAGE!**

Cooper's exclusive new Distributed Stress Construction uniformly distributes tire strain from bead to bead. No excessive flexing—no undue friction and dangerous tire heat. Coopers actually run 20-30° cooler than ordinary tires. Built to reduce friction and heat, Cooper truck tires also give you a stronger, longer-wearing tire that can be recapped or retreaded for thousands of safe extra miles. Let your Cooper dealer show you the fine results other fleets are getting with Cooper DSC tires. No obligation.

THE COOPER CORPORATION
Dept. C-3, Findlay, Ohio



Rapid flexing of wire at one point causes heat and break. When flexing is distributed over longer length no heat generated, no break. (Principle of Cooper DSC tires.)



*DISTRIBUTED STRESS CONSTRUCTION
Cooper TRUCK TIRES

17 Johns-Manville factories and mines strategically located throughout the U. S. and Canada



HE BRINGS YOU
85 YEARS OF
"Know-How"

This Johns-Manville Sales and Service Engineer, like other J-M representatives throughout the country, is on the job in this wartime emergency to lend every possible assistance to truck and bus fleet operators.

"KNOW-HOW" is now being recognized as the force by which American industry has created the unbelievable miracles of today's war production. The Johns-Manville Sales and Service Engineer shown above came from this school of "know-how." He is backed by the accumulated experience of 85 years of Johns-Manville service to industry . . . 85 years of service to transportation—and today providing a wartime service for our rail-

roads, our navy, merchant marine, and for our aircraft factories.

This J-M representative has specialized in asbestos friction materials and in the braking problems of the automotive industry. Today his services become more significant than ever because of the importance of motor transport in our wartime emergency.

Through the J-M Brake Survey Plan for fleet operators, he can help you insure the safest possible braking operations, and the most economical braking you've ever known. For full information on the J-M Brake Survey Plan, write to Johns-Manville, 22 E. 40th St., New York, N. Y.



JOHNS-MANVILLE BRAKE LININGS

FLEET-TESTED SETS

BRAKE BLOCKS

CLUTCH FACINGS

WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 116)

serve vehicles, rubber, parts and manpower. And while ODT is campaigning many private truck operators would gladly enter into joint action plans if organized labor would only let them. So far ODT has ignored organized labor's obvious influence in preventing such plans. Recognizing that voluntary cooperation

is out of the question private truck operators have proposed an amendment to ODT No. 17 which would effect the savings that ODT expects of joint action plans, and stalemate organized labor's opposition. The amendment would curtail the frequency with which local deliveries could be made. ODT has the amendment "in the works" and is under pressure from the unions to kill it. It boils down to this: the operators want to conserve miles, the unions apparently don't. And, as matters

stand at this point, the ODT apparently does and doesn't.

An Unpleasant Comment

We dislike to be unpleasant but it is time some one asked why the ODT went to the expense of sending a representative to England to study the employment of women in motor transport services? Upon returning to this country, after a stay in England longer than planned, the representative was quoted in an ODT press report as having found out (a) that English women are employed in motor transport services, and (b) that if they can do it in England we can do it in the United States. Thus to ascertain what could have been gleaned from British automotive periodicals that find their way across submarine-infested waters month after month, ODT sent a representative by space-scarce air transport thither and back. If ODT's labor section has nothing more to add to its report on the employment of female labor in England, it would appear that the war effort and lend-lease operation would have been better served if instead the air liner had taken five machine guns out and brought five cases of Scotch back. (We have no idea what five guns or five cases weigh so we apologize in advance to the fair representative for any overestimate of avoirdupois.)

Speaking of Weight

Capital circles late in February had inside dope that trucking interests in Pennsylvania would back a weight increase bill in the state legislature. Axle weight would be increased to 20,000 lb. from 18,000; four-wheel truck gross weight would be raised to 30,000 from 26,000; six-wheel truck to 40,000 from 36,000, and tractor semi-trailer to 45,000 from 39,000. Particular interest centers in the 20,000 axle weight which departs from the 18,000 lb. standard backed by highway interests and authorities for nation-wide uniformity.

END

(Please resume your reading on P. 36)

400,000 Tires Saved for Recapping by Inspections

An estimated 400,000 passenger car casings which were so worn or damaged that they needed immediate repair to save them for further use were rescued by tire inspections during the first two months the inspection program was in effect.



"E" for Excellence

★ In receiving this joint citation of the Army and Navy, the management and personnel of The Weatherhead Company recognize that the award carries with it not only an honor but a grave responsibility. We will discharge that responsibility by making every effort to increase the flow of vital parts for planes, tanks, trucks, ships, combat cars, radios and munitions which Weatherhead plants have been turning out at the rate of millions every day!

Look Ahead with



Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND, OHIO

*Manufacturers of vital parts for the automotive, aviation,
refrigeration and other key industries.*

Branch Offices: Detroit, Los Angeles, New York and St. Louis

Here's Where the Trouble Starts!



*And here's
where Trouble
Starts on an
Oil Pump*



WAR DRIVING CALLS FOR BEARING SERVICE

This is no time to "get by" with partial engine overhauls. When oil pumping starts at worn bearings, correction must start there, too. In addition, slower driving and shorter trips don't let the engine reach efficient operating temperatures, aggravating oil pumping from worn bearings and causing crankcase condensation, creating corrosive acids which attack certain types of bearings.

You can save vital metals and parts, prevent more serious engine or crankshaft injury later by checking up on the engine bearings now. Through your Jobber, backed by Federal-

Mogul's nation-wide network of branch plants, you can obtain prompt, expert bearing replacement or bearing reconditioning service to "keep 'em rolling" efficiently and economically for the duration.

Every bearing part needed is made of scarce, strategic or critical metals. It's harder to keep stocks available, but the essential nature of automotive transportation is recognized and we are doing our best to keep every needed engine bearing part quickly available and continue to be the most dependable source of supply.



FOR VICTORY

Motorcycles, trucks, tanks, planes, guns, boats are equipped with Federal-Mogul bearings and other precision parts. And Federal-Mogul's expanded factories continue producing millions of bearings to service the cars carrying war workers and materials to their jobs. We "keep 'em rolling"!

FEDERAL-MOGUL CORPORATION

DETROIT, MICHIGAN

WORN ENGINE BEARINGS CAUSE OIL PUMPING



High-Speed Diesel Engines

by P. M. Heldt. Fourth Edition. Published by P. M. Heldt, Nyack, N. Y. Price, \$4.00.

This fourth edition has been completely revised and contains new material particularly on the desirable properties of Diesel fuels, on means of cooling injection nozzles, on injection pumps and governors, two-stroke engines, supercharging and lubrication.

Great strides have been made in recent years in improving the "lugging" qualities of the Diesel—not by changes in the engine itself but by changes in injection equipment and governors. The average Diesel drops rapidly in speed with an in-

crease in load, due to the fact that conventional injection equipment does not increase the fuel quantity injected with a decrease in speed as rapidly as it should.

At first it was tried to overcome this deficiency of injection equipment by changing the design of the delivery valve, but it has since been found that a more promising line of attack is by changes in the governor design, and a number of governors are described in the new edition which automatically increase the injection quantity as the engine is pulled down in speed.

The chapter on lubrication deals with the various recent advances in lubricating oils designed to overcome such troubles as

ring sticking, scoring, and excessive sludging.

Of the 237 illustrations, including a considerable number of large-scale sectional assembly drawings of engines, approximately 70 are new.

Gas Rationing Procedure Simplified for Truck Users

Moving to simplify gasoline rationing procedure further the OPA and the ODT have arranged for the mailing of third and fourth quarter transport rations to all commercial motor vehicle operators who hold single-unit Certificates of War Necessity.

This means that after July 1, 1943, only 243,000 of the nation's 3½ million truck, bus and taxicab operators need to appear personally before War Price and Rationing Boards for the quarterly renewal of their gasoline rations. Gasoline coupons cannot be mailed to this group. However, fleet operators will be notified by their rationing boards when their gasoline coupons are ready, and they may then pick them up without delay.

So that local rationing boards may prepare gasoline rations for mailing, it will be necessary for holders of ODT Certificates of War Necessity to present their certificates to their ration boards once before July 1. At the time the certificate is presented, the operator's quarterly allotments, as they appear on the certificate for the full calendar year, will be recorded.

Truck Tire Recapping Quota Increased for March

A reduction in the quota of truck tires for March as compared with February and an increase in the truck tire recapping quota was announced by the OPA.

Comparison of truck quotas for March with the February allotments follows:

Tires:—March, 299,000; February, 345,122.

Recapping Services — March, 460,000; February, 345,065.

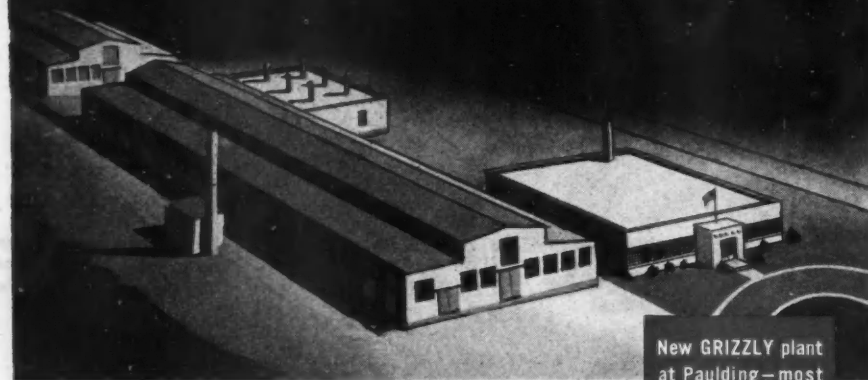
Tubes — March, 292,100; February, 298,935.

ODT Advocates Flexible Authority for Governors

In a nation-wide drive against state barriers which impede war traffic, the Office of Defense Transportation has proposed to the 44 state legislatures in session this year an Emergency Transportation Act, it was disclosed by ODT Director Joseph B. Eastman.

Specifically, the bill would confer on the Governor flexible authority to take emergency action in regard to: staggered hours of employment to facilitate transportation to and from places of employment; maximum rates of speed for motor vehicles; sizes and weights of motor vehicles which may be permitted to use state highways; suspension of statutes or regulations requiring licenses or fees for the entry and operation of a motor vehicle licensed in another state; conservation of vital equipment, materials, and supplies—especially rubber.

GRIZZLY BRAKE LINING



New GRIZZLY plant at Paulding—most modern and efficient in the industry!

27 years of "STOP" Engineering

Grizzly moulded brake lining—in rolls, segments, sets or blocks—is the finest product of the brake lining industry! Grizzly's 27 years of experience, plus the most modern manufacturing facilities, assure this to be a fact.

Grizzly Brake Lining is an asbestos-friction compound, moulded under hundreds of tons of pressure into a solid, homogenous body that retains the same coefficient of friction through its entire life. It is cured

and reduced to precise dimensions by modern machining methods. Its construction results in greater resistance to wear and, in addition, makes Grizzly Brake Lining impervious to water; eliminates separating, swelling and loss of friction.

Use Grizzly Brake Lining on your next reline job to provide better all-round performance at lower per-mile cost. Grizzly Lining provides astonishing freedom from adjustments—lightens the demands upon your service labor.

Ask your jobber — or write direct — for new 1943 GRIZZLY catalog with the TIME-SAVER feature — handiest reference in the shop!



GRIZZLY MANUFACTURING COMPANY
PAULDING, OHIO
PLANTS AT PAULDING AND LOS ANGELES
Warehouse Stocks in Principal Cities

MILITARY AIRCRAFT
SPARK PLUG

AUTOMOTIVE SPARK
PLUG

BOMBING RAIDS

F.O.B. Flint, Mich.

"MISSION ACCOMPLISHED"—and safe return! Both depend heavily on aircraft spark plugs. So, those which AC produces for the Army Air Forces must be painstakingly built to the exactness and reliability of the finest watch.

AC has been building quality and performance into automotive spark plugs for more than 34 years. It was only logical, therefore, that AC should make aircraft plugs for Army bombers, fighters, and transports.

But, a pilot's success requires still more than fine plugs, finely made. Those plugs must be kept in peak condition. Consequently, ground crews check, clean, and adjust aircraft spark plugs after a specified number of operating hours.

Expert Care for YOUR Spark Plugs

These days, the spark plugs in your car, truck, or tractor should be given similar care. And this is a simple thing to do—through the nation-wide Conservation Service which America's mechanics are now rendering. This is now being augmented by contacts from AC, carrying to all service organizations the latest and most practical methods of diagnosis and repair of AC products.

The service which spark plugs, and the eight other AC automotive products, should receive is briefly described in the panel below. Help to conserve vital materials—and gasoline, oil, and rubber—by regularly following the suggestions given.

When replacement is needed, select AC—and be sure of complete satisfaction.

AC SPARK PLUG DIVISION — GENERAL MOTORS CORPORATION

Awarded to the men and women of AC on September 2, 1942, for outstanding achievement in producing for Victory.



OIL FILTERS—Slow driving accelerates the formation of soot and carbon in engine oil. If not constantly filtered from the oil, this dirt will clog piston rings, which causes increased consumption of oil and gas. So, replace your oil filter element whenever your dealer's AC Oil Test Pad shows that your oil is dirty.



SPARK PLUGS—Dirty or worn plugs waste as much gas as one coupon in ten. They also cause hard starting, which weakens your battery. Under present slow driving conditions, have your plugs cleaned and adjusted every few months.

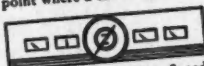


AIR CLEANERS—A dirty air cleaner increases gasoline consumption because it chokes down the flow of air into the carburetor. Your air cleaner should be rinsed whenever your car is lubricated.



FUEL PUMPS—Practically trouble free. But, if yours has been in use thirty or forty thousand

miles, it may be worn to the point where a check-up is due.



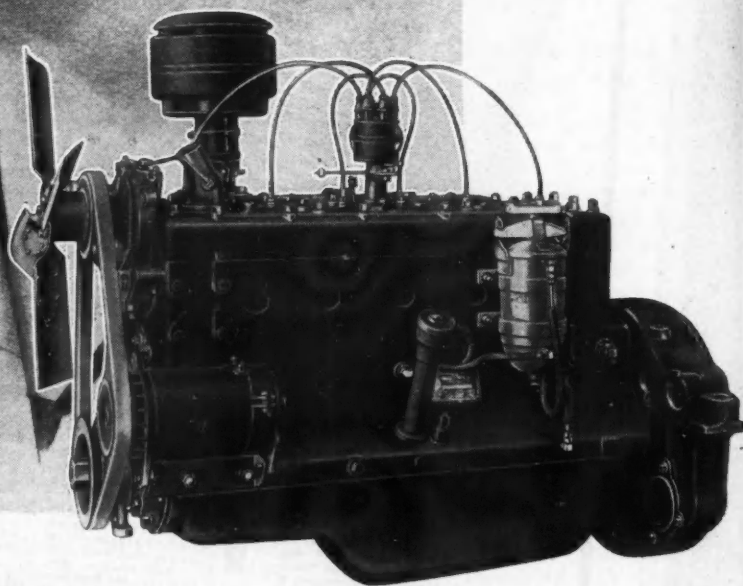
DRIVING INSTRUMENTS—Speedometer, gasoline gauge, oil pressure gauge, ammeter, and temperature gauge seldom need service. But, if they give trouble, have them cared for at once.

Reproduction of national advertising appearing in leading general and farm publications.

One or more AC products is used on every truck, prime mover, jeep, half track, and tank of the United States Army. The same precision manufacturing produces the AC Spark Plugs, Oil Filters, and other devices available to you for commercial vehicles. Conserve those you have; and, when replacement is necessary, select AC for complete satisfaction.



**Your Dollars
are Power, too!
Buy War Bonds**



THE mighty power of dependable Continental Red Seal Engines is serving our fighters on land, sea, and in the air. It is also serving for industry, in the oil fields, and on our farms — serving to keep alight the inspiration and unconquerable "Power to Win" of American Liberty.

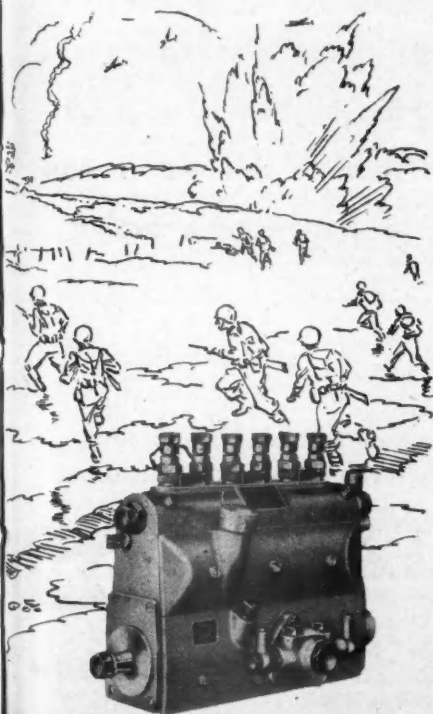


Continental Motors Corporation



Three years ago she was a school girl. Now, she's a modern New England craftsman drilling holes .006" in diameter in fuel injection spray nozzles.

"Running as smooth as silk"



ZERO HOUR . . . no time now for tinkering . . . the landing boat's Diesels must not fail or falter. In a raid timed to the last minute, fighting men trust their lives to the quality of their equipment, confident that America's production men and women have done their part.

That confidence is well founded. At American Bosch, for example, increasing shipments of Diesel fuel injection pumps and spray nozzles pour forth to equip the engines of the United Nations. Turning out this equipment to tolerances measured in *millionths* of an inch are American Bosch *specialist* craftsmen . . . relative youngsters thoroughly qualified now—through engineering, planning, training, and tooling—to handle *few* jobs *extremely well*.

The same American Bosch engineering know-how that keeps our production line at top speed is also helping engine designers, manufacturers, users. In research, design, and production—war or peace—American Bosch serves all branches of the internal combustion engine industry. *American Bosch Corporation.*

AMERICAN BOSCH

AVIATION AND AUTOMOTIVE ELECTRICAL PRODUCTS . . . FUEL INJECTION EQUIPMENT

MODERN CRAFTSMEN IN THE NEW ENGLAND TRADITION

AN OLD CUSTOMER OF OURS






Countless "Old Dobbins" pulled the carriages and wagons that were built in the York-Hoover shops during the early era of the fifty-one years we have been in business. They established the York-Hoover reputation for exacting workmanship and lasting durability.


Today York-Hoover is building steel bodies for our armies and has won the Army-Navy "E" award for excellence in

production. Their precision manufacture and sturdy construction are being proven on the battlefields of the world.



We look ahead into tomorrow, and are planning new ways of building still better truck bodies — for YOU. New methods and designs, part of our war experience, will make York-Hoover bodies your ultimate choice as soon as this war is won and we return to peace time activity.

**Awarded November 10, 1942
For Excellence In Body Production**



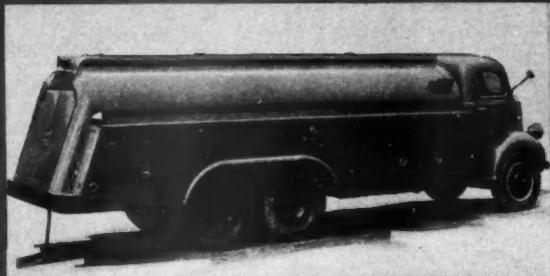
EAST YORK, PENNSYLVANIA

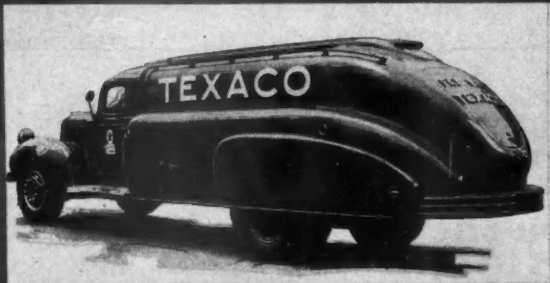
BODY DIVISION



Tank truck, Hansen-equipped, used for delivering fuel to airplanes. Inset shows tank doors fitted with Hansen No. 99 Rotary Door Lock.



Texaco 1250-gallon refueling unit fitted with Hansen Locks and Flush Handles. Tanks of this type are operated at airports coast to coast.

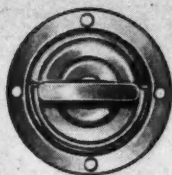


3000-gallon aircraft refueling unit. Hansen Locks and compact Flush Handles. Tank fillers and meters fuel. Adaptable for loading two units at a time.



2100-gallon combined gasoline and fuel oil delivery unit Hansen equipped. Delivers fuel to mechanized forces during maneuvers.

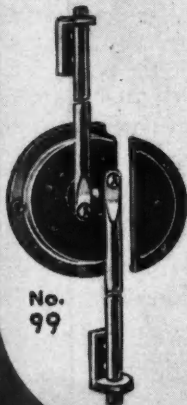
Keep them running — Keep them flying — with **HANSEN**—



No. 79-L



No. 105



No. 99

THE stamina for which Hansen Hardware is noted is again demonstrated on gasoline and oil delivery tanks for refueling mechanized units—to "keep 'em flying" and keep them running indefinitely.

Doors of these Tank units are streamlined with Hansen Flush Handles. They are kept tight shut with Hansen Locks—noted for their simple design and rugged, durable construction.

Leading tank, truck and trailer manufacturers are using Hansen as standard, as it often outlasts the units on which installed.

ASK FOR CATALOG — If you don't already have one — showing the complete Hansen line.

PRODUCTS ILLUSTRATED

No. 79-L FLUSH HANDLE. Fits flush with door. Increases load space. Easy to apply.

No. 99 ROTARY DOOR LOCK. Draws doors solidly together, making them rattleproof.

No. 105 DOOR LOCK. Compact. Strong. Rods cut to length. Holds doors tight-shut.

A. L. HANSEN MFG. CO.
5047 Ravenswood Ave.
CHICAGO, ILL.





We have two reasons to be proud of this Flag

First, of course, we are proud of the Army-Navy "E" flag because it is an award to the 3,000 employees of our Richmond refinery. We have long known that their energy, devotion and skill merit the highest praise.

The other reason is that this flag is a harbinger of better days to come, when we will take pride in offering to industry the fruits of Richmond's tremendous war effort.

Today we can only hint at the giant strides our petroleum research and production have made. We cannot publish the specifications of a host of new products, nor the story of how old products have been sensationally improved. We cannot describe the system by which these products are distributed on a world-wide scale.

But we can promise you that, when these facts become known, they will open new horizons for American businessmen and technicians in many fields. They will prove once again that "know-how" can turn yesterday's impossibilities into tomorrow's accomplishments.

In the meantime, the Richmond refinery and all of Standard of California are living up to the "E" flag, helping bring the inevitable victory nearer.

STANDARD OIL COMPANY OF CALIFORNIA



RPM DELO IS USED IN U. S. NAVY DIESELS

First used in submarines, RPM DELO performed so well that it is now also used to lubricate high-speed Diesels in the Navy's mine sweepers, sub chasers, landing barges, patrol boats and ocean-going tugs. In all these vessels it is licking some of the toughest lubricating problems in the world. RPM

DELO is typical of Standard's development of petroleum products for war.



RPM DELO is marketed under the following names:

RPM DELO • Caltex RPM DELO • Kyso RPM DELO
Signal RPM DELO • Imperial-RPM DELO • Sohio RPM DELO
CONCENTRATE

Ask your Diesel engine manufacturer or distributor for the RPM DELO supplier in your vicinity



**War Time
is NO TIME
TO WASTE
TIME**



12 TON MODEL
ILLUSTRATED

Be prepared to change tires quickly ... Equip each of your trucks with a **HEIN-WERNER HYDRAULIC JACK**

It's important to keep trucks rolling with a minimum of lost time. War time is no time to waste time.

The man behind the wheel never knows in advance just when he may have to change a tire. But when the time does come, it sure is a great time saver to have a Hein-Werner Hydraulic Jack in the tool kit, ready for instant service.

The speed and ease of operating a Hein-Werner Hydraulic Jack cuts down the "lost time" required to lift the tire clear of the road, change the tire, and get the job rolling again. Since time is so important, it will pay you to immediately equip your fleet with H-W Jacks.

Complete line includes hydraulic jacks of 3, 5, 8, 12, 20 and 30 tons capacity... *Quick delivery* can be made on orders carrying priority rating.

**For details, ask your H-W Jobber or write us
HEIN-WERNER MOTOR PARTS CORP.
Waukesha, Wisconsin**

**HEIN-WERNER
HYDRAULIC JACKS**
Are Built Right and Priced Right



WAR JOBS WELL DONE MEAN LOWER FUTURE POWER COST

SCARCELY anything you can name fills so many different war jobs as the General Motors Diesel engine. In tanks, landing boats, patrol boats, trucks, tractors and auxiliaries—everywhere sturdy dependability is needed—they're supplying power for our fighting forces.

The result is that though plant facilities have mushroomed and production records are broken time and time again, everything we can make is hustled off to war.

But there is this important com-

pensation. These accelerated war demands are advancing GM Diesel production and technique years faster than could the demands of ordinary peacetime manufacture.

So we can look forward to lower-cost power and to new peacetime applications for these engines when the war is won—to broadened fields where this power will serve.



Even before the war, truckers knew the economies of GM Diesels. When peace comes, the expanded manufacture born of war will make this motive power more widely available than ever before.



ENGINES 15 to 250 H.P. DETROIT DIESEL ENGINE DIVISION, Detroit, Mich.

ENGINES . 300 to 2000 H.P. CLEVELAND DIESEL ENGINE DIVISION, Cleveland, Ohio

LOCOMOTIVES ELECTRO-MOTIVE DIVISION, Le Grange, Ill.

BATTERY BLACKOUT

slows up production too

Replace with
GLOBE *Spinning Power*

The Battery Built for Wartime Replacement Service



Delays of essential materials always hold up somebody else, somewhere along the line. Free your schedules from the risk of Battery Blackout. Careful check-up of batteries BEFORE EVERY TRIP is just as necessary as gas and oil. When replacement is required, install GLOBE SPINNING POWER — the battery that is powered for wartime replacement service. List of models for trucks, buses, commercial vehicles and Diesels on request.

GLOBE-UNION INC., Milwaukee, Wis.

ATLANTA • BOSTON • CINCINNATI • DALLAS
LOS ANGELES • MEMPHIS • PHILADELPHIA • SEATTLE

CJ-848

GLOBE

Spinning Power
BATTERIES



EAST SIDE YARD
7-MILE ROAD AND
OUTER DRIVE
SLOCUM 3960

EAST DOCK
FOOT OF LYCASTE
LENOX 6420



COAL AND COKE-BIN-FED STOKERS
BUILDERS' SUPPLIES

MAIN OFFICE AND WEST SIDE YARD
14480 DEXTER BOULEVARD
TOWNSEND 8-5260

WEST SIDE YARD
14480 DEXTER BLVD.
TOWNSEND 8-5260

WEST DOCK
FORT STREET AND
MILLER ROAD
VINEWOOD 1-7050

DETROIT, MICH.

September 18, 1942

Quaker State Oil Refining Corporation
Oil City, Pennsylvania

Gentlemen:

We believe that sufficient time has now elapsed since we began using Quaker State HD Oil to give an honest report of its performance. This oil is being used to lubricate the motors of our thirty-six cab-over-engine Ford trucks, and also to lubricate the engines of our twenty Barber-Greene conveyors. This equipment is working day in and day out in the coal-dust laden atmosphere of the yards and docks which we operate.

Because the motors in all of these conveyors and trucks are standing up well, with no visible signs of mechanical breakdown, sludge, varnish, valve or bearing trouble, we think this is every indication that Quaker State HD Oil is doing a thorough lubrication job.

Yes, we are well satisfied and have in consequence again placed an order for immediate delivery of ten barrels of Quaker State HD Oil.

Very truly yours,

DAVY FUEL & SUPPLY COMPANY

By *J. D. Yanick*
General Manager

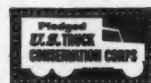
FDY/sc

Best as you'll agree—Quaker State HD!

Quaker State HD Oil
for your trucks, buses and tractors

QUAKER STATE HD OIL

Quaker State Motor Oil
for your passenger cars



PROVED IN ACTION...

ON UNCLE SAM'S COMBAT VEHICLES



STEWART-WARNER INSTRUMENTS

Can Help Your Trucks To Longer Life!

WHEN you're in enemy country, you can never guess what may be over the next hill or around the next turn in the road. But you *must* know that every part of your machine is in top-notch working order—and accurate instruments provide that information at a glance. Which is why so many of Uncle Sam's combat vehicles carry Stewart-Warner Instruments!

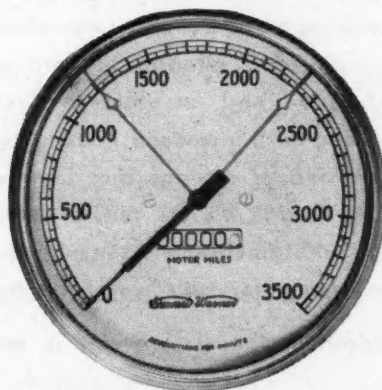
That same reliability can help your trucks to longer life! Engine speeds, for example, must be kept within the "economy range" if your motors are to work at maximum efficiency, with minimum consumption of fuel, over the longest possible period of years. Operating above or below the "econ-

omy range" means not only needless waste of fuel, but needless wear and tear on the motor. And every one of your drivers can stay within this range—easily—if every truck is equipped with the Stewart-Warner Motor Mile Tachometer.

What's equally important, these amazing instruments record "motor miles" instead of "road miles"—idling wear as well as traveling wear—so that your trucks can be serviced on that basis. *This is another contribution to longer truck life.*

Your trucks are part of America's diminishing transportation equipment. It is a patriotic obligation to keep them operating in good order until trucks

are again being manufactured. Let Stewart-Warner Instruments help you meet that obligation! Mail the coupon!



STEWART-WARNER

MOTOR MILE TACHOMETER



1876 DIVERSEY PARKWAY • CHICAGO, ILLINOIS

STEWART-WARNER CORPORATION
1876 Diversey Parkway, Chicago

I operate _____ trucks. Please give me complete information on Stewart-Warner Motor Mile Tachometers.

Name _____

Address _____

City _____ State _____

Firm Name _____

NEED MORE TRUCKS?



PD-310
(2-9-45)
WAR PRODUCTION BOARD
Division of Industry Operations
Automotive Branch

APPLICATION TO ACQUIRE
NOTE: A separate application must be submitted for each vehicle to be converted to a six-wheeler. The application must be submitted on the reverse side and the "Usage Classification" must be filled in.

RECORD OF OFFICE OF DEFENSE TRANSPORTATION

LOCAL ALLOCATION OFFICE NO. _____ (State) _____
LOCAL ALLOCATION NO. _____ (City) _____
USAGE CLASSIFICATION _____
Approved _____ Disapproved _____
SIGNED _____ Local Allocation Officer _____
RECEIVED _____ FWD _____ Date _____ (State) _____

1. Name of Applicant _____
2. Doing business as _____ (Street and Number) _____
3. Address (Principal Place of Business) _____ (City) _____ Local _____
4. Engaged in transportation: For hire _____ Not for hire _____
5. Principal commodities transported: _____ Give dates of such Applications: _____
6. How many applications have you submitted prior to this date? _____
7. Applicant requests authority to acquire new commercial motor vehicle described below:
MOTOR TRUCK OR TRUCK-TRACTOR _____

TRUCKTOR THIRD AXLE

Put This before your
RATIONING BOARD!

Is it more trucks you need, or more payload capacity?

In many cases, the addition of a Trucktor Third Axle to one of your present four-wheel trucks will **DOUBLE** its payload capacity, eliminating your need for a new truck. This conversion will save not only a complete truck, but also two rubber tires and tubes, much gas and oil and the manpower needed to build, drive and maintain the extra truck. When combined with increased hauling capacity, that is the kind of savings that impress your Rationing Board. It's the reason for the W.P.B.'s request that fleetowners consider a six-wheeler conversion before applying for a new truck.

In addition, the six-wheeler is easier on the

highway, (proved by government impact tests), and therefore on your tires. It is safer, (verified by I. C. C. accident reports and insurance company statistics). It is more maneuverable, (witness its wide use by the Army). Write now for detailed information.

THE TRUCKTOR CORPORATION
156 WILSON AVENUE • NEWARK, N. J.



Trucktor

**THIRD
AXLES**



Good Will IS EARNED THE HARD WAY

Belief in a company, its products, its services, is a prize . . . not a present. It is earned the hard way, over a period of years, by living up to the promise, by exceeding the expectation, whenever and wherever possible.

This is true of your business. It is true of ours. Grey-Rock is more than a name in brake linings and clutch facings. It is a symbol of belief, stemming from performance that matches the promise.

Only a rash man would attempt to predict the problems facing transportation between here and Victory, or the answers to them. But come what may, be assured that Grey-Rock will meet and master them sanely and surely.

In this period of doubt and distress, balanced by determination, hitch your wagon to a star-performer, your Grey-Rock jobber. He has the right materials, and the right technical data, embracing National Safety Council standards. UNITED STATES ASBESTOS DIVISION of Raybestos-Manhattan, Inc., MANHEIM, PA.

ESSENTIAL PRODUCTS FOR ESSENTIAL TRANSPORTATION



Grey-Rock

BALANCED BRAKES • BLOCKS
CLUTCH FACINGS • FAN BELTS • ROSE





Oh, how Schickelgruber hates you!

IF SCHICKELGRUBER could, he'd probably include all fleet owners and operators as one of his first objects of sabotage.

This is why . . .

Trucks (at a recent check) were handling 65% of all freight going into war plants and 69% of all freight going out of war plants!⁽¹⁾

The trucking industry's magnificent job is being done—and *could only be done*—by the ablest kind of management and the skill and ingenuity of maintenance men. American trucks are being kept on the job today despite freezing of truck and parts manufacture. Fleet owners have put Fiberglas-equipped batteries high on their list as a "must" for dependable wartime operation. For their experience clearly shows that in many cases these batteries with measurable care, can stay

(1) Motor Truck Facts, 1942 Edition



on the job twice as long as comparable batteries without Fiberglas* Battery Retainer Mats.

★ *these batteries stand up under extreme vibrations; an important reason why they are used in many armored cars, tanks, and submarines.*

★ *these batteries have excellent cold-starting characteristics and higher average power output during lengthened life.*

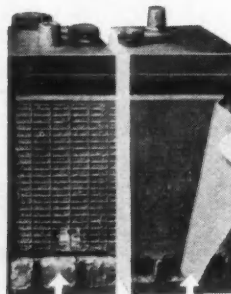
For the reasons why Fiberglas-equipped batteries have these superiorities, see diagrams and captions at right. The demands of the Army, Navy, and war industries for Fiberglas Retainer Mats are becoming larger and larger. We are determined to let nothing stand in the way of meeting these demands where

Fiberglas is the only material available for critical wartime uses. You can help too, by taking "extra special" care of the Fiberglas-equipped batteries you now

have in service. Owens-Corning Fiberglas Corporation, Toledo, Ohio. In Canada, Fiberglas Canada, Ltd., Oshawa, Ont.

Left: Without Fiberglas Retainer Mats, power-producing material sheds gradually to the floor of battery, piling up sufficiently to short the cell.

Right: With Fiberglas Retainer Mats active material is held in place longer on battery grids, giving longer battery life and more constant power.

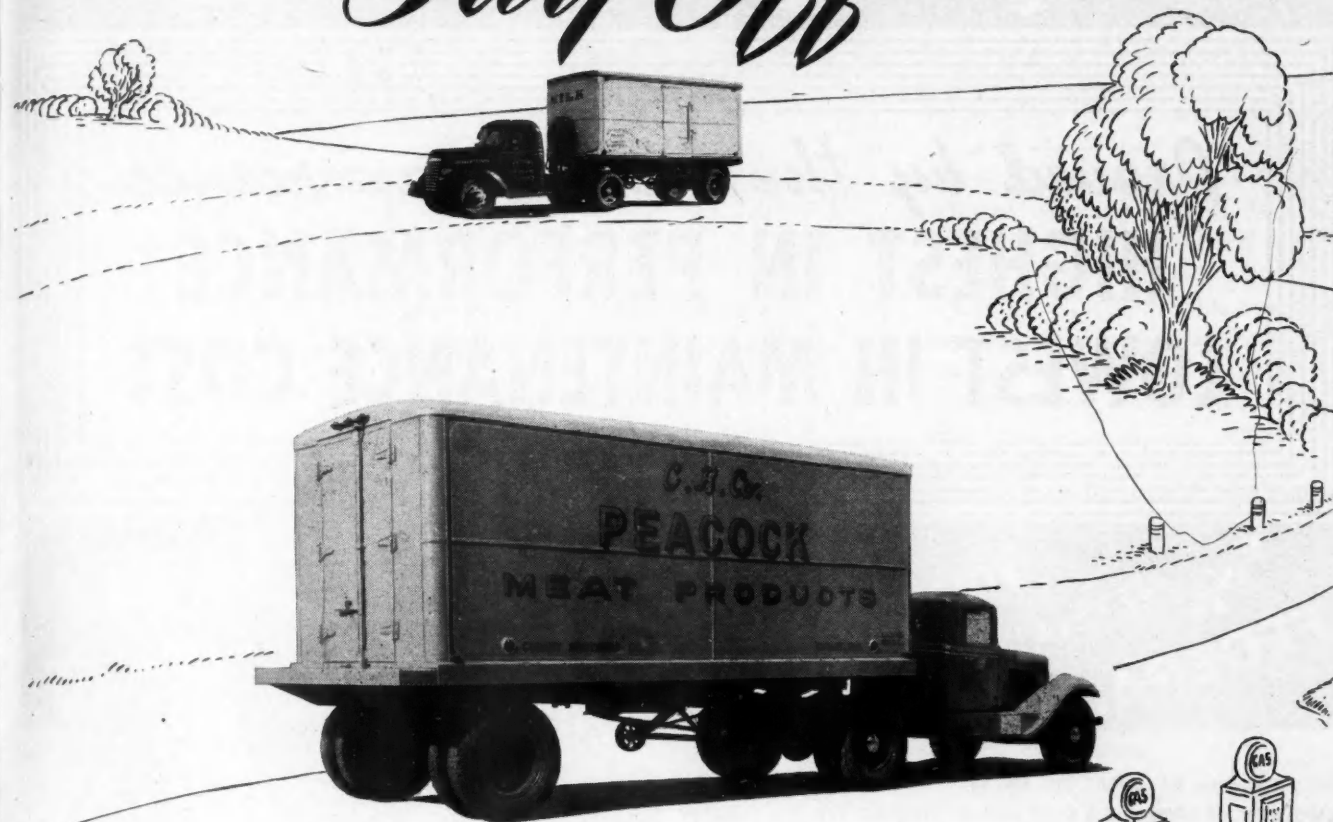


FIBERGLAS

*T.M. Reg. U.S. Pat. Off.

BATTERY RETAINER MATS

THESE ARE THE TRUCKS THAT *Pay Off*



In EXTRA TIRE MILEAGE and GAS SAVINGS



Among the trucks running the highways today, some of the most important are the refrigerated jobs for inter-state haulage. In these everything Haskellite has been urging for years is being proved.

Construction of Haskellite "Plymetl" is standing up under punishment as promised. The

special insulating value of the steel panels backed up by plywood is giving an extra satisfaction in preservation of quality in food shipments—and to the men who must watch costs.

On the war record of these jobs you can afford to study Haskellite body construction for far greater use in the future.

HASKELITE MANUFACTURING CORPORATION
GRAND RAPIDS, MICH. • DETROIT, MICH. • CHICAGO, ILL. • NEW YORK CITY

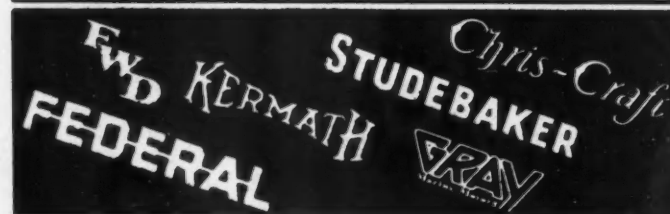
HASKELITE

Plymetl

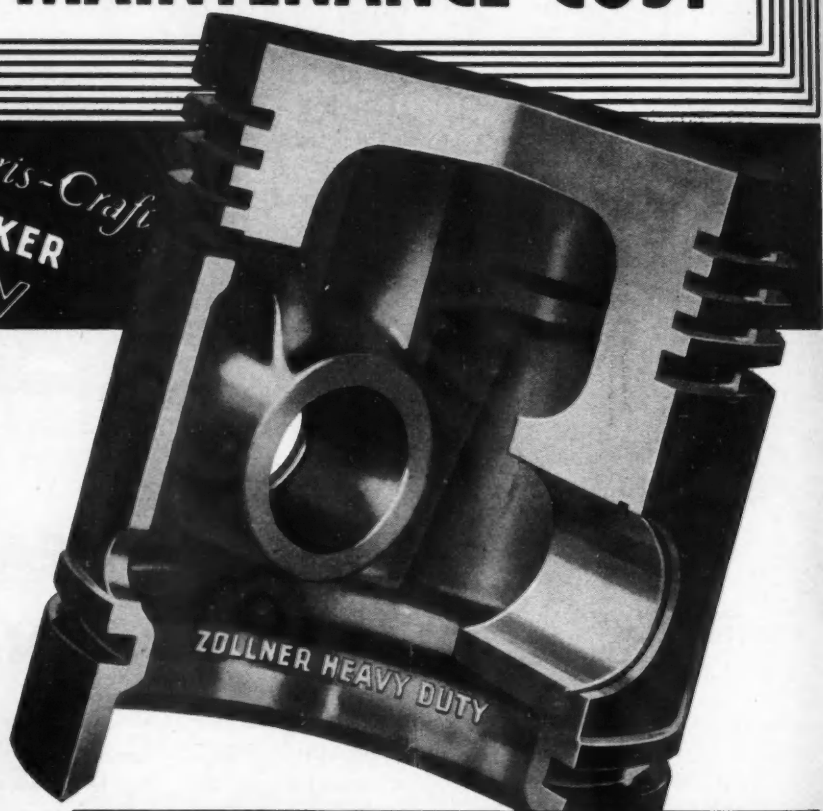
Phemaloid



Proved by the test of experience
HIGHEST IN PERFORMANCE
LOWEST IN MAINTENANCE COST



By millions of miles of service in the engines of America's great transportation companies, Zollner Pistons have proved the leadership and unmatched advantages of Zollner engineering. Accepted as fact, wherever experience has been the test, is the higher performance and the lower maintenance cost which result through the use of Zollner Piston equipment. Selected as original equipment in America's finest motors and specified as standard replacement by the overwhelming majority of fleet operators, Zollner Pistons stand, today, unequalled—unrivaled—in their record of performance, efficiency and low-cost per mile.



ORIGINAL EQUIPMENT IN AMERICA'S FINEST MOTORS
FIRST CHOICE OF FLEET OWNERS FOR REPLACEMENT

ZOLLNER

HEAVY DUTY PISTONS

ZOLLNER MACHINE WORKS, FT. WAYNE, INDIANA

Gasoline Engines — Carbureted Oil Engines — Solid Injection Spark Ignition Engines — Diesel Engines

Meet the TENSION BOYS

(TOO LITTLE and
TOO MUCH)

These amiable villains and ten other causes
of belt failure come to life in the pages of
DAYTON'S BELT SERVICE MANUAL



Improper tension—either too little or too much is one of the 11 reasons for premature belt failure which comes to life in the form of amiable but deadly villains whom you will find on the pages of DAYTON'S BELT SERVICE MANUAL.

On these lively and instructive pages are given the causes, diagnosis and remedies of the 11 specific belt conditions which disrupt essential wartime schedules and waste the time and materials of bus and truck fleet owners.

Write for this concise, graphic and valuable Belt Service Manual and for information about Dayton's FREE FLEET SURVEY of Fan Belts and Accessory Drives.

THE DAYTON RUBBER MFG. CO.
DAYTON, OHIO

Export Division
DAYTON RUBBER EXPORT CORPORATION
33 Pearl Street New York, N. Y. U. S. A.



**THROW YOUR SCRAP
INTO THE FIGHT!**

BUY WAR BONDS
AND SAVINGS STAMPS

Dayton

THE GREATEST NAME IN FAN BELTS

85% Original Equipment on all American Makes of Cars

WORLD'S LARGEST MANUFACTURER OF V-BELTS

TRAINING WOMEN DRIVERS

(CONTINUED FROM PAGE 36)

perience, although women having any contact with the public received preferential consideration. The principal points considered were:

1. Age. Minimum was set at 21. No definite maximum was set although, for obvious reasons, we did not wish to go over 35 or 38 unless the applicant met all other qualifications to a high degree.

2. Physique. While our basic plan eliminated the need for any heavy lifting or carrying, we selected women who could easily handle cases of empty bottles which weigh approximately 36 lb.

3. Sales experience.

4. Self assurance. This point is closely allied to sales ability, but it opened the way for women who never had sales experience yet who might be good material.

5. Reliability. Inasmuch as milk delivery is a job that must go on every day regardless of season, holidays or an individual's mood, the personnel department checked each applicant's employment record thoroughly to determine her reliability.

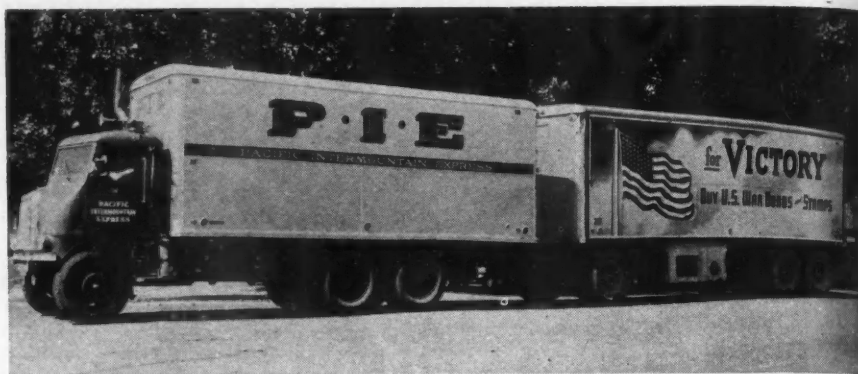
6. Responsibility. In order to weed out the dilettantes and the adventurous types, we favored the women who had financial responsibilities at home or, by their references, were known to have a high sense of duty and obligation to their jobs and employers.

7. Appearance. We did not concern ourselves with superficial looks, although in sales work a highly personable individual frequently makes a successful sales person. Our main consideration with these women, as with men, was to select a type that would make a neat and pleasing appearance.

There were other factors, such as character, education, etc., that were used in the selection. All our drivers are bonded and if any adverse characteristics, such as dishonesty and undesirable personal habits, were to be found, we wanted to eliminate such people in advance. However, no questionable characters were found among the applicants.

Preliminary Planning

Conferences of the various department heads concerned resulted in the



One of eight new Freightliners added to the fleet of Pacific Intermountain Express. Truck chassis by Freightliner Mfg. Co., Salt Lake City, bodies and trailer chassis by Fruehauf. They are powered with super-charged Cummins Diesel engines. These rigs have fifty feet

of body length; truck body twenty-two feet, trailer body twenty-eight feet. They have a six-foot cab with four feet between the vehicles. They are both equipped with P.I.E. designed automatic refrigerators. The war bond painting on both sides is in natural color.

type and style garment the women were to wear. The sales department naturally favored a garment having high attention value. We in the safety department looked to the health, comfort and safety angles; suggesting, for example, that driver's shoes have metal toe guards to prevent any injury in the event that a case of bottles might slip and land on the woman's foot. All concerned were in favor of uniformity of dress to insure neat appearance. Thus, it was a combination of ideas that produced the garment finally selected.

In the meantime plans were under way as to the course of instruction. Basically the same course was selected as we had been using to train male driver salesmen. This was especially true of safety and driving instruction. Our experiment naturally would arouse a great deal of attention because at that time no other company in our territory had women drivers on the street. They would be watched very closely, we were certain. Therefore, no unfavorable incidents must occur to prejudice this experiment in any way, or bring unfavorable criticism.

Following acceptance by the personnel department, the women are obliged to take a medical examination, in accordance with the state laws.

Basic Training

The sales department's part of training includes a tour of the company's dairies, ice cream plants, laboratories, receiving stations, as well as the farms which supply our company with milk. Then they are taught our system of route bookkeeping, one of the major duties of milk route saleswork.

By this time the women have a pretty good idea of our business and the part they are expected to fill. They have been in the association of two or three individuals who kept close watch on them to discover any negative traits or characteristics that might prove undesirable or interfere with the sale of our products.

Driver Training Program

When the women finally are sent to our department, they are enthusiastic and eager to get out on the route. Ours is the last hurdle they must leap. They know fully that even though they may be acceptable to the personnel and sales departments, they must be certified as to their safe driving ability before going on the job. Frankly, we have not been concerned about that phase of the training. If they have normal intelligence and can pass our physical requirements, we can do the rest within a week; usually about two days.

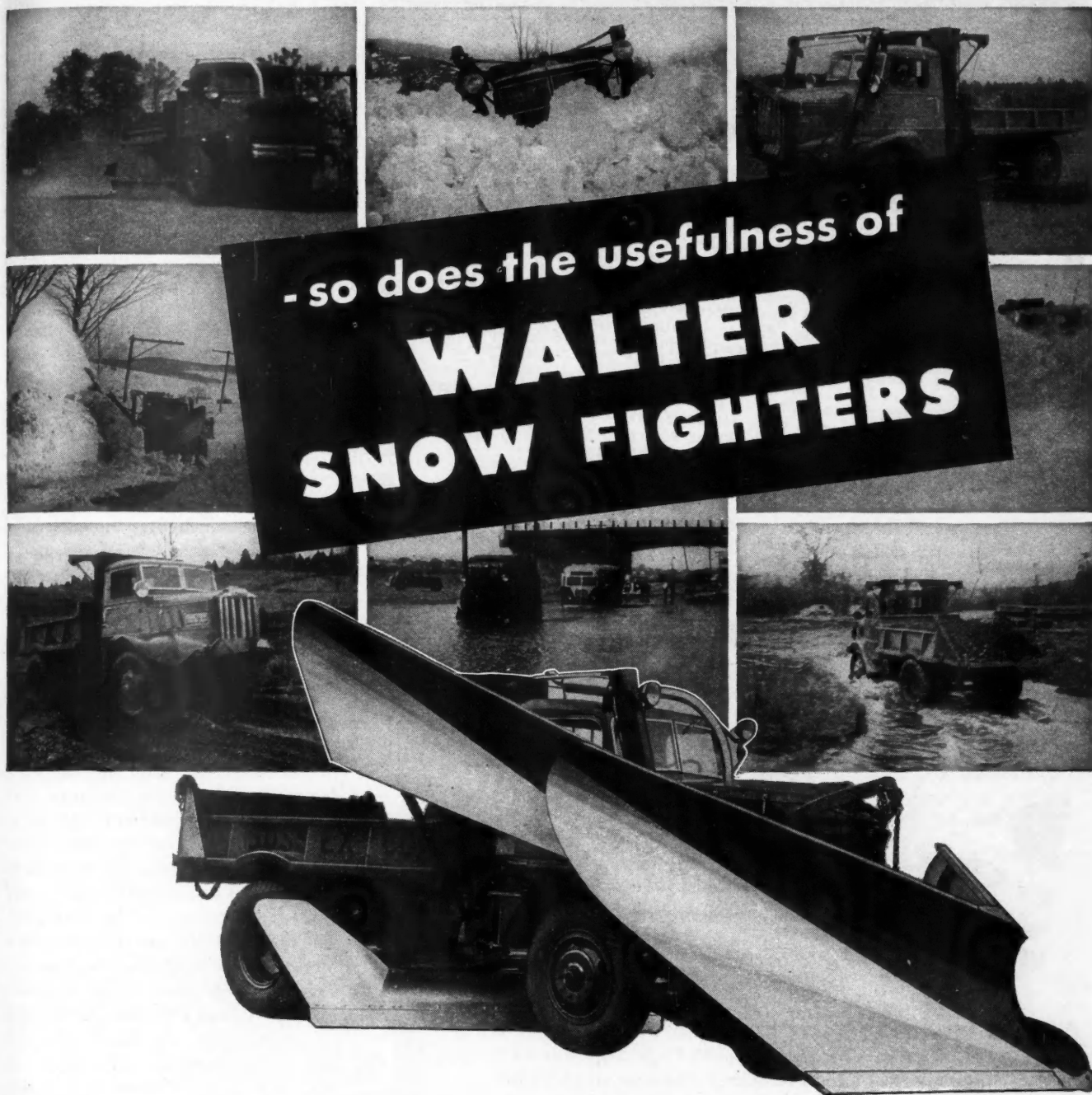
Regardless how much or how little the young lady may know about driving, we assume she knows absolutely nothing. As a matter of fact, we would much rather train a woman who cannot operate a motor vehicle than one who does, because the latter usually must unlearn more, or as much, as she learns—and bad habits are sometimes very difficult to overcome.

There are a total of nine separate steps in our training program, as follows:

1. Knowledge of basic parts of truck.
2. State Motor Vehicle Code and local driving regulations.
3. Care of vehicle.
4. General traffic test.

(TURN TO PAGE 140, PLEASE)

Bad Weather Goes 'Round the Calendar



WHEN the blizzards stop, your Walter Snow Fighters are ready for their next important jobs . . . battling spring floods and washouts, summer cloudbursts and fall gales that cripple traffic and damage highways.

The exclusive Walter 4-Point Positive Drive provides the unfailing four-wheel power-plus-traction that is so indispensable in ramming snowdrifts — freeing pavements of hard-packed snow and ice — scraping dirt and gravel roads after rainstorms — or pulling heavy loads through snow, mud, sand, ruts or up stiff

grades, without bogging down, slipping or stalling.

The basis of Walter 4-Point Positive Drive is its three patented lock differentials which automatically proportion the power to each wheel according to its traction at any instant. Suspended Double Reduction Drive provides greater gear capacity, reserve power, higher ground clearance and less unsprung weight. These, plus many other engineering features, make Walter Snow Fighters a sound investment for everyday and emergency service. Write for full details.

WALTER MOTOR TRUCK CO. • 1001-19 IRVING AVE., RIDGEWOOD, QUEENS, L. I., N. Y.

The Fleet Operator's Answer to WAR-TIME SHORTAGES



MEN... MATERIALS... EQUIPMENT

Overlooking This Gas-Saving Tip?

Naturally you have made all necessary carburetor and fuel pump adjustments to obtain maximum mileage, but here's an additional tip many fleet operators are using to conserve gas and oil.

A cooling system, for example, that does not disperse heat properly **DECREASES** engine efficiency, **INCREASES** gas consumption. This condition, due to insulating deposits of grease, dirt, muck, loose rust and scale, can be quickly remedied simply by circulating a recommended solution of **OAKITE PENETRANT** through the cooling system for a short period. It **THOROUGHLY** removes deposits... improves heat transfer... steps up motor performance to help you save gas and oil. Why not put this performance-proved Oakite method to work in your shop **TODAY?** Write for **FREE**, 36-page manual giving details!

OAKITE PRODUCTS, INC.
26D Thames Street, New York
Technical Service Representatives Located in All
Principal Cities of the United States and Canada

OAKITE
DEGREASING
—speeds—
FLEET MAINTENANCE



**KEEP THEM
ROLLING
WITH
KEY
Graphite Paste**

☆ **WHAT KEY PASTE IS...** Key Graphite Paste is the oil-proof—heat-proof sealer to be used wherever high pressures, high temperatures, and oil and gasoline-proof conditions are involved. It expands when heated... fills in all irregularities... enables the re-use of worn and battered gaskets and fittings and preserves new ones.

☆ **WHAT KEY PASTE DOES...** Leak-proof joints can be made up economically on cylinder heads and manifold gaskets... crankcase gaskets... carburetor and gasoline lines... differentials... and for all oil and gasoline connections in the service station.

**Write for a liberal Free sample of this
KEY Paste today... no obligation.**



2612 McCasland Avenue

East St. Louis, Illinois

TRAINING WOMEN DRIVERS

(CONTINUED FROM PAGE 138)

5. Corrections, if any.
6. State driver license examination.
7. Corrections, if any.
8. Skill Test at training field.
9. Review and certification.

If the candidate is really a good driver, it is possible to cover the entire program in one day. Frankly, this is rare unless the driver has no really bad driving habits, has good vision—we require 20/20 in each eye, natural or corrected—and has a driver license. Most of our candidates were certified in two or three days, although some required a week.

We place greatest stress on the general traffic test which, in the final analysis indicates how the trainee will handle the vehicle on the route. There are a total of 68 operations required to take the vehicle over the prescribed course, most of which are repeated a number of times to enable the instructor to discover bad faults. If any faults are found the instructor concentrates on their correction.

This test is far more rigid than the state driving test. Thus if the trainee passes it, no difficulties are encountered with the state test.

The final, or skill driving tests, is conducted on the training field which is so laid out and marked by stanchions that every possible turn, back, forward and side movement encountered under actual loading and route conditions can be simulated. The object of this test is to determine and develop the skill of every driver to such a high degree that the possibility of highway accidents is reduced to a minimum. Incidental, although not inconsequential, advantages of this training are evidenced by fewer scratches and dents in the fenders and bodies of the trucks in our fleet.

The course and tests are the same as used for our "Golden Wheel" Driving Contests held in the past, in which skilled drivers from many of the fleets in the East compete for driving honors. It can be concluded, therefore, that if the women pass these tests successfully they will not present any problems on the route.

Because of the thoroughness and comprehensiveness of these tests, details have been compiled and will be

(TURN TO PAGE 142, PLEASE)



Appearance COUNTS EVEN IN WARTIME

To thousands of eyes your trucks and sales cars are **YOU** as they travel the highways and streets. Is there **PUNCH** and **SELLING** in the impression your "Rolling Billboards" deliver to your customers—to the prospects they pass as they travel?

A necessary part of wartime truck conservation is repainting. The same trip to the shop permits "overnight" decoration with Meyercord Truck Decals.

Why not cash in on the "free advertising space" on every vehicle you operate. Use colorful Meyercord Decal trade-marks, pictorials, lettering and numerals—designed to fit your needs. Any size or subject. Large fleets or small. Enjoy the "sales-appeal", durability, speed of application, multi-colored designing and uniformity of weather-tested Meyercord Truck Decals. Costs but a fraction of "hand-painting". Free Technical and Designing Service. Address Department 118.

Help our National War Effort. Let us show you how fleet operators are contributing to morale and War Bond Sales.



Photo courtesy of Purity Bakeries.

**DECALS
SAVE
METAL**

**WEATHER • TIME AND TORTURE-TESTED
MEYERCORD DECALS**

THE MEYERCORD CO., 5323 W. Lake St., Chicago, Ill.

Less time in the paint shop

MORE TIME TO DELIVER THE GOODS!



● When your trucks spend fewer days in the paint shop, they spend more days on the road...delivering the goods for Victory. **DULUX** holds repaintings to the minimum...rushes necessary paint jobs through the shop "on the double." Here are four ways **DULUX** is speeding and protecting America's vital trucks...

- 1 Its hard, tough film resists scratches and bangs—as well as weathering and rust. Fewer touch-ups are needed.
- 2 Gives longer life with full protection. Trucks go to paint shop less often—spend more time on the road.
- 3 Goes on easily, dries quickly. High gloss without rubbing. Saves manpower in paint shop. Gets truck rolling sooner.
- 4 Makes the fleet sparkle. Keeps it always looking its best—with full color and gloss.

E. I. DU PONT DE NEMOURS & CO. (INC.)

Finishes Division, Refinish Sales, Wilmington, Delaware



THINK TWICE BEFORE REPLACING WIRE OR CABLE



Think twice before putting in a new wire or cable. Don't make a replacement when a repair will do.

Under order L-158, new automotive wire and cable is reserved for *essential* jobs exclusively. If a wire or cable can be cleaned, shortened, or otherwise repaired, rather than replaced, that is what must be done.

There's no two-way business about it. Copper is short. So are rubber and lacquer. The Armed Forces could easily use all the supplies available. It's only because cars, trucks and buses are considered essential, too, that limited quantities of new wire and cable are made available at all.

But the supply must be conserved. Check the wire on every job that comes into the shop—and make *repairs* before replacements become necessary! Here's another hint—keep wire clean. Wiping off accumulated dirt and grease will do wonders toward increasing the life of present wiring.

**THINK TWICE
BEFORE USING MATERIALS
NEEDED BY THE ARMED FORCES**



✓ Check the wire on every job...

TRAINING WOMEN DRIVERS

(CONTINUED FROM PAGE 140)

presented in the May issue of COMMERCIAL CAR JOURNAL.

Result Successful

Our first class of women proved and acquitted themselves creditably on their routes. The same reports have been received on all subsequent classes. To date, after 5 months of service for the first class and one month for the last class, not a single accident as occurred to driver or vehicle.

With the exception of two or three, all the women we hired are still on the job. Those that left did so for reasons unrelated to their work. As a whole, they appear to like the work. As far as we are concerned, the jobs are theirs as long as they want them—now and after the war.

Of course, we intend to rehire our men who joined the armed forces.

Operation Adjustments

Our driver-saleswomen fitted themselves into the picture very nicely and very unobtrusively. Except for the first few days, there has been very little levity or interruption of normal operations. Because of the novelty, the men on the loading platforms, in the office and garage naturally gave the girls the once-over. There also was some slight amount of kidding among the younger fellows. Aside from that, the women have not created the confusion some believed would occur.

Only a few changes were needed in our set-up to accommodate the women. First, adequate lavatory and dressing room space was provided. Next, we put a couple extra men on the loading platforms to load the women's trucks. This plan was (TURN TO PAGE 144, PLEASE)

"A load behind is a trip ahead"

IMMEDIATE DELIVERY
on Open and Closed Top
TRAILERS
AND CHASSIS

National Sales—~~Kingham~~—National Service

KINGHAM TRAILER CO.
INCORPORATED
LOUISVILLE, KENTUCKY

Fleets "PAY OFF" where they are needed; on the road. That's where Genuine Timken Bearings keep them . . .

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

WAUKESHA
Multi-Fuel
ENGINES
DIESEL OIL
GASOLINE
BUTANE
ALL LIQUID OR GASEOUS FUELS

JONES PORTABLE TACHOMETER



The world's largest operators of commercial vehicles use Jones Portable Tachometers to check engine speeds for tune-ups, and setting governors, etc. Here are a few: Standard Oil Co. of La., N. J., N. Y., Shell Petroleum Co., Atlantic Refining Company, Tidewater Oil Company, Keeshin Motor Express.

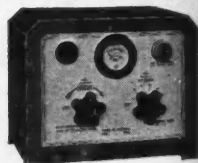
Mack Trucks, Brockway, U. S. Navy.

Direct, instantaneous reading

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Conditions



Eliminate Run Down Batteries for Low Cost Battery Mileage. The new, improved, Valley-Guaranteed (two years) charger connects to the lighting circuit . . . is easy and economical to operate moving parts. Now it is easy and inexpensive to obtain long battery life by maintaining efficient battery charge. Model 8G-12 charges 1 to 12 6 volt batteries.

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